MODELING PERFORMANCE DIFFERENTIALS IN LARGE CONSTRUCTION ORGANISATIONS IN SOUTH AFRICA

By

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ABSTRACT

The research investigates the relationship between the constructs: organisational characteristics, resources, capabilities, competitive strategies, business environment and performance of large construction organisations in South Africa. It examines whether the synthesis of different theoretical views - industrial organisation, contingency approach, resource-based view and dynamic capabilities theory situated in the strategic management paradigm can be used in explaining the differentials in construction company performance. The rationale for the study stems from the dearth of literature within construction management and in the context of South Africa on the factors causing differentials in the performance of construction companies.

The study used a mixed methods research approach in data collection and developed hypotheses that take the peculiarities of the research context into consideration. The quantitative approach used survey questionnaire while in-depth interview was used to obtain qualitative data from large construction organisations operating in Gauteng, Kwazulu Natal and Western Cape. The Partial Least Square Structural Equation Modeling (PLS-SEM) technique was used in analysing and establishing the relationship between the constructs. The findings reveal that the synthesis of industrial, contingency, resource-based and dynamic capability theory can be used in explaining the relationships between organisational constructs and performance. Furthermore, the findings provide a significant insight into specific determinants of organisational performance and suggest that the organisational characteristics and competitive strategies pursued by construction organisations have a significant impact on their performance; that a positive interaction exists between organisational resources, capabilities and performance, which requires an alignment with competitive strategies to show significant effect. It also emerged that while all the constructs are important in explaining differences in organisational performance, organisational characteristics and strategies provide better explanations.

The study contributes to the knowledge base on construction and strategic management and develops a model that shows how a set of contingent and industrial factors contribute to performance differentials in large construction organisations. Through this model, a set of carefully designed interventions can be developed and implemented within a construction company to enhance its competitive advantage and performance.

DECLARATION STATEMENT

I declare that all the information contained in this thesis has been collected and presented in accordance with ethical rules and academic conducts of the University. I hereby declare that this thesis signifies my own work which has never been submitted either in parts or whole for the award of any degree, diploma or any other qualifications, except where due acknowledgement has been made in the thesis.

Signed……

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(OYWLUQ001)

DEDICATION

This thesis is dedicated to the loving memory of my Grand Mother Deborah Siye Ejide-Erin Oyewobi, my mother Esther Adenihun Oniosun and my uncle Philip Aderounmu Oniosun. E sun re ooo.

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PUBLICATIONS ARISING FROM THE THESIS

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Conference papers

1. AO Windapo, KS Cattell and **LO Oyewobi*** (2012). Business diversification and performance: evidence from South African construction firms In: *Proceedings of the NMMU Construction Management 40 Conference,* 27-29 November, Port Elizabeth, South Africa, 244-254, ISBN: 978-1-920508-16-6.

2. **Luqman O. Oyewobi**, Abimbola O. Windapo, Keith Cattell and Rotimi, J. O. B. (2013). A framework for identifying construction companies best practice: a panacea for corporate performance failure. *Proceedings of the CIB World conference 5-9 May, Brisbane, Australia.*

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LIST OF ABBREVIATIONS

AEC	Architectural, Engineering and Construction
BBBEE	Broad-Based Black Economic Empowerment
CIDB	Construction Industry Development Board, South Africa
DC	Dynamic Capability
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HDI	Historically Disadvantaged Individuals
IO	Industrial Organisation
KMO	Kaizer-Meyer-Olkin
PCA	Principal Components Analysis
PESTLE	Political, Economic, Socio-cultural, Technological, Environmental
PLS	Partial Least Square
PLS-SEM	Partial Least Square Structural Equation Modeling
PMI	Project Management Institute
RBV	Resource-Based View
SCA	Sustained Competitive Advantage
SCP	Structure-Conduct-Performance
SEM	Structural equation Modelling
SWOT	Strength, Weakness, Opportunity and Threat

CHAPTER 1
GENERAL INTRODUCTION

1.1 Introduction

One of the cardinal issues that guide research in strategic management has been to understand the sources or causes of performance differences between organisations. In explaining the causes of differences in both short and long-term performance, Lenz (1981) identifies competitive strategy, business environment, and characteristics of the organisation as the major determinants. Other authors (such as Barney, 2011; Teece, 2007) see disparities in organisations' resources and capabilities as the underlying cause of performance differences.

The main objective of construction businesses is to achieve sustainable performance. Construction organisations pay considerable attention to the business environment to develop strategies to improve performance by using different control systems (structure, styles). Competitive strategy allows an organisation to deploy resources and utilise its capability effectively. Competitive strategy, organisational characteristics, resources, and capabilities all influence organisational performance; however, their interplay, and how they *jointly* affect organisational performance, is not well understood (e.g. Barney, 2011; Hoque, 2004; Lansley, 1987). Establishing these relationships and clarifying how they influence performance constitutes the major motive for this research.

This chapter gives an overview of the study. After discussing the background to the research, the chapter explains the rationale, aims and objectives of the study. It then provides a brief description of the research scope and limitations, and outlines the research methodology adopted in the study. Lastly, an outline of the thesis structure is presented.

1.2 Background to the research

In recent years the construction industry has witnessed both increasing intensity of competition and increasing instability in the business environment in virtually all facets of construction business, both in developed and developing economies (Kale & Arditi, 2002; 2003; Tan, Shen & Langston, 2012). As a result, there has been a growing interest in analysing the competitive strategies used by construction organisations, resources and capabilities, and the organisational characteristics that help them to achieve superior performance under different business

environmental circumstances (Lansley, 1987; Shiraz, Langford & Rowlinson, 1996; Tan *et al*., 2012).

Superior performance can usefully be framed in terms of competitive advantage. According to Lynch (2012), competitive advantage means the significant advantage that an organisation has over its competitor, which allows it add better value to its products and services than do its rivals in the same niche. Researchers have looked at how competitive advantage is linked to four key factors: strategy, business environment, organisational characteristics, resources and capabilities (Chew, Yan & Cheah, 2008; Lenz, 1981; Tan *et al*., 2012; Yamin, Gunasekaran & Mavondo, 1999).

In terms of strategy, Porter (1980) argued that a business can achieve sustained competitive advantage to maximize profit by using any of three generic strategies, namely differentiation, cost-leadership or focus strategy. A plethora of studies have upheld this argument, providing evidence to support the reliability and relevance of Porter's generic strategies to the construction industry (Betts & Ofori, 1992; Budayan, Dikmen & Birgonul, 2013; Dikmen & Birgonul, 2003; Kale & Arditi, 2003; Li & Ling, 2012; Price & Newson, 2003; Tan *et al.*, 2012). Overall the literature in this field suggests an increasing level of awareness on the part of researchers about the importance of understanding competitive strategies as a source of performance heterogeneity among organisations in the construction industry. Nevertheless, only a few studies in construction management have empirically investigated the impact of competitive strategy on organisational performance (e.g. Dikmen & Birgonul, 2003; Kale & Arditi, 2002, 2003).

The second key factor implicated in competitive advantage is the business environment. The existing literature has established that the business environment moderates the strength of the relationship between strategy and organisational performance (Dess & Beard, 1984; Ketchen, Thomas & Snow, 1993, McGhan & Porter, 1997). However, there is some disagreement between strategy researchers on the nature of the moderating effects of the business environment. For example, Prescott (1986) found that the business environment influenced the strength of relationship between strategy and performance, but the nature of the effect was unclear. Keat and Hitts (1988) suggest that a cost-leadership strategy would be optimal in a stable environment, but this strategy would be negatively related to performance in an uncertain or dynamic environment. By contrast, Kabadayi, Eyuboglou and Thomas (2007) posit that a

differentiation strategy would be optimal for a stable, less complex environment. Organisations in this context should strive for innovation in their production process, allowing them to charge premium prices and stave off imitation by rivals in the industry. Other researchers have considered the variable of munificence as an aspect of the environment. Munificence denotes the availability of key resources to organisations from the environment to support their growth (Chen, 2003). It has been suggested that a focus strategy would be advantageous for an organisation in a low munificence environment, while differentiation with innovative strategy should be favoured in a high munificence environment (Baum & Wally, 2003; Kabadayi *et al*., 2007).

The third factor to take into account is that of organisational characteristics. Baum and Wally (2003) identified *strategy configuration* and *strategic fit* as complementing the relationship between strategy and organisational characteristics, which is essential in drawing conclusions about the moderating effect of the business environment on organisational performance. Magnier-Watanabe and Senoo (2008) considered organisational characteristics as attributes emanating both from the management style adopted by the organisation, through its structure or strategy, and from the organisational culture exemplified in the nature of its employees and relationship with the management. Organisational characteristics are the distinctive elements of an organisation in terms of management style, decision-making or problem-solving style and organisational structure that place it in a better position to fit into the business environment and achieve superior performance (Lansley, 1987).

Several researchers have investigated the levels of organisational performance associated with the generic competitive strategies, along with organisational characteristics and the kinds of business environment under which different types of generic competitive strategy could be pursued by organisations (e.g. Porter, 1980, 1985; Lenz, 1981; Miller, 1988). Very little attention has, however, been paid to the influence of organisational characteristics and competitive strategies on organisational performance with respect to business environment in the construction industry. A few studies have explored the performance implications of organisational characteristics, such as organisational culture and structure, under different environmental conditions (Ankrah, Proverbs & Debrah, 2009; Giritli & Oraz, 2004; Lansley, 1987; Shiraz *et al*., 1996). But thus far there has not been any published research exploring the relationship of these characteristics with competitive strategies.

The last contingent factor is organisational resources and capabilities. A few researchers have advanced the idea that organisational resources and managerial capabilities are those factors that drive the organisation's sustainable competitive advantage and hence performance (e.g. Barney, 2001; Spanos, Zaralis & Loukas, 2004). They believed it is organisation's unique resources and capabilities that differentiate how they perform compared to their competitors and which lead to superior performance on the long run. However, certain attributes of the construction industry affect their core business activities and invariably dictate the kind of organisational characteristics the organisation will implement (Phua, 2006). This suggests that the unique resources accumulated by an organisation together with the environmental forces in the industry determine the strategies that organisations adopt to achieve sustained superior performance (Phua, 2006). How the organisation's resources and capabilities coupled with appropriate strategies alongside environmental forces can lead to sustained organisational performance remain largely unknown in the South Africa construction industry.

The issue of performance in construction has been examined from three perspectives, namely project, the stakeholder and the organisational performance (Yang, Yeung, Chan, Chiang & Chan, 2010). However, many of these studies have focused on project performance with little consideration on the organisations executing the work. Performance in the industry has been measured using both objective and subjective measures of performance (Kale & Arditi, 2003, Tan *et al.*, 2012). However, Parnell, O'Regan and Ghobadian (2006) contend that in examining linkages between strategy and performance, the results and conclusions can be dramatically influenced by choice of performance measures. Therefore, measuring organisational performance through non-financial (subjective) measures can provide important insights into organisational processes, and yield information that is not available by using financial measures alone (Parnell *et al*., 2006).

Despite the growing level of awareness among strategy researchers in the construction industry (e.g. Tan *et al.*, 2012), the nature of the relationship between strategy, organisational characteristics, business environment and performance still remains unclear. This is because few studies have empirically investigated how the business strategy adopted by organisations and the characteristics of these organisations can causally explain performance heterogeneity in the construction industry. Mainstream strategic management employs theories such as Industrial Organisation theory (IO), Resource-Based View theory (RBV), Dynamic Capabilities theory (DC), and Contingency theory to establish the nature of links between these

factors. However, within the construction management field there is generally a lack of organisational research using these theories (Cheah & Garvin, 2004; Chew, Yan & Cheah, 2008; Lansley, 1994). As a result, construction studies have not been able to identify the organisational characteristics, generic strategies and environmental conditions that can lead to superior performance, and to strongly advocate and incorporate them in a bid to achieve performance excellence in organisations. In order to address this gap, this study examined the ways in which the above factors affect organisational performance.

1.3 Problem statement

The construction industry worldwide is becoming more risky and highly competitive, primarily due to its fundamental characteristics and fragmentation (Proverbs & Faniran, 2001; Walker, 2002). Such competitive intensities have drawn little attention from construction management researchers as motivation to examine the sources of performance heterogeneity among construction organisations compare to mainstream strategic management research. There is need to understand the factors and processes that constrain organisations in capitalising on their capabilities, and which limit construction organisations' ability to make effective use of the unique resources at their disposal to achieve sustained competitive advantage (Phua, 2006).

In the South African context, the decay and decline experienced by the construction industry in the past years has prompted the government to try to revitalise the industry by giving black people more economic power and the opportunity to play their part in rebuilding the nation. These interventions from the government have created strict regulatory frameworks and policies such as preferential procurement and the Broad-Based Black Economic Empowerment (BBBEE) charter. These policies have led to uneven advantages amongst players in the industry, and have reduced competition for contracts on the part of the large indigenous and foreign contractors (Construction Industry Development Board (cidb), 2004). The requirements of the regulatory policies and legislation constrain organisations in performing their business activities, and influence the type of decisions taken by organisations (Phua, 2006). The presence of these regulations, as well as organisations' unique resources and capabilities, shape the types of strategies construction organisations can adopt to attain optimal performance (Kale & Arditi, 2003; Phua, 2006). The cidb (2012) seems to be cognisant of this, as it has called for construction organisations to develop an effective business and growth strategy to improve their competitiveness and efficiency in achieving superior performance.

Developing and applying an effective strategy would allow construction organisations to match their activities to the rapidly changing business environment, and attain sustained competitive advantage (Tan *et al.*, 2012).

It has been theoretically and empirically established that business strategy and its environment significantly influence organisational performance (Kale & Arditi, 2003; Porter, 1980, Tan *et al*., 2012). Many studies in the developed economies have investigated how construction organisations achieve sustained competitive advantage, looking at how companies pursue competitive strategies that permit them to respond to environmental opportunities through exploitation of their internal strengths, while avoiding internal weakness and neutralising external threats (Barney, 2011; Kale & Arditi, 2002; Tan *et al*., 2012). However, these issues are under-researched in developing economies such as South Africa. There is thus a need to study how competitive strategy and organisational characteristics interact with environmental conditions to affect organisational performance and profitability in the Southern African context. These concerns formed the basis for the main research questions:

What are the determinants of construction organisations' performance and how can existing strategic management theories be used in explaining performance differentials?

To address the main research questions, answers were sought to the following specific sub-questions:

- What are the prevalent competitive strategies adopted by construction organisations operating in the South African construction industry; and what specific strategic attributes of their competitive strategies are strongly related to the performance of these organizations?
- How do organisational characteristics influence performance?
- What is the nature of the business environment in the South African construction industry, and what is the moderating effect of this environment on the strength of the relationship between strategy and organisational performance?
- How do organisations' resources and capabilities impact on competitive strategy in enhancing organisational performance?
- Can distinct groups be identified among the construction organisations? Do these groups differ in terms of their performance?

- How can the influences of organisational characteristics, competitive strategies and environmental dimensions on organisational performance be modelled to enhance performance?

1.4 Aim and objectives

This research aimed to examine the causes of performance differentials among large construction organisations in South Africa, with a view to developing a model to improve that performance.

The specific objectives pursued by the research were to:

- Identify the prevalent competitive strategies used by large construction organisations, as well as the specific attributes linked with each competitive strategy.
- Examine the relationship between organisational characteristics and strategies adopted by organisations and their effects on organisational performance.
- Examine the nature of the construction business environment and investigate whether it has moderating effects on the strength of the relationship between strategy and organisational performance.
- Examine how organisational resources and capabilities impact on competitive strategy, and their influence on organisational performance.
- Classify construction organisations into different strategic groups and examine whether differences exist between organisations in terms of performance, characteristics, resources and capability, and how they achieve strategic fit within different environments.
- Develop a model for construction organisations' competitiveness which links organisational characteristics, resources, capabilities, competitive strategies and business environment.

1.5 Justification for the study

Business strategy is identified in the literature as playing a crucial role in the ability of construction organisations to achieve performance excellence (Price, 2003; Cheah & Garvin, 2004; Soetanto *et al.*, 2007). This is underscored by McGeorge and Zou (2013), who argue that a construction enterprise requires a comprehensive strategy if it is to be successful in tendering for projects and developing the business. This is because the industry is project driven, and is often characterised by competitive tendering with a prolonged negotiation process and marginal profit (McGeorge & Zou, 2013; Soetanto *et al*., 2007). However, Soetanto *et al*. (2007) argue that construction organisations often fail to adopt long-term strategies that can guarantee their survival in a challenging business environment. In line with this, a number of studies both in the developed world and emerging economies have examined the type of competitive strategy used by construction organisations and their impact on organisational performance (e.g Kale & Arditi, 2002; 2003; Li & Ling, 2012; Tan *et al*., 2012). These studies acknowledged the adoption of Porter's generic strategies in the industry and conclude that the strategies used by organisations have impact on their performance.

In the South African context, research in the construction industry has thus far focused on strategic planning, but not on competitive strategy. For example, Grim and Andrews (1985) examined the impact of strategic planning on the corporate performance of building material companies in a turbulent market. They concluded that the South African industry was lagging behind the developed countries in the introduction of strategic planning into businesses. Grim and Andrews (1985) further asserted that strategic planning can improve the performance of an organisation only when adequate attention is given to strategy implementation and environmental context. They concluded that the effectiveness of strategic planning is dependent on the contingencies of the situation.

More recently, a few South African studies have considered the lack of strategic planning among emerging contractors or SMEs (e.g. Adendorff, Appels & Botha; 2011; Ncwadi & Dangalazana, 2005). These studies conclude that long-term business strategy or planning is vital for the survival of the organisations studied, but found a lack of such planning. In related studies that examined the performance of the industry in South Africa, a number of performance related failures were identified (Emuze & Smallwood, 2011; Martin & Root, 2012). Some of the issues identified as causes of poor construction organisations' performance

in South Africa include: lack of concern by organisations for the business environment, late information, poor allocation of resources, lack of strategic planning, low skills level, rework, poor productivity, and poor quality (Emuze & Smallwood; 2011; Martin & Root, 2012). Most of these studies investigated organisational performance based on the outcomes of the projects executed without giving attention to what made organisation fail in delivering projects. None of these studies examined holistically the contingent effect of organisational characteristics, competitive strategies, resources and capabilities on organisational performance.

It is clearly important for construction organisations to understand their organisational characteristics, their business environment, their capabilities and resources, and the potential competitive strategies they could employ. But this thesis will argue that they also need to understand how these factors interact with each other, so that organisations can aim for the optimal strategy for the specific contingencies which they face. A better understanding of these issues will enable contractors to identify threats and opportunities within their operating environments, and understand how they can employ the resources at their disposal to achieve sustained competitive advantage which is the essence of competitive strategy. An improvement in the performance of construction organisation would help in the growth of the local industry, which would in turn translate to economic development of the nation due to the construction industry's linkage to other sectors of the economy.

Against this backdrop, this study examined the influence of the contingent variables of organisational characteristics, resources and capabilities, and competitive strategies on organisational performance, with special attention paid to the moderating effect of the business environment. The study aimed to provide significant insights for organisational management at the levels of senior executives and project managers, on the impact these constructs on performance of their organisations. More broadly it aimed to present empirical evidence on the impact of organisations' characteristics and strategies on construction organisations' performance.

1.6 Scope of the study

This research explored central issues relating to the performance of large construction organisations in the South African context, investigating how organisational characteristics and strategies as well as resources and capability are used to achieve strategic fit within the business

environment. In carrying out this study, the focus was on large construction organisations in three major provinces of South Africa where approximately 70% of public works have been executed in the last six years: Gauteng, Kwazulu Natal and the Western Cape (StatSA, 2012). Therefore, the unit of analysis of this study was construction organisations. The study was limited to general building and civil engineering construction organisations in grades 7 to 9 on the cidb registers of contractors. These grades (i.e. the "top" three levels of the register, which include the largest organisations) were selected on the basis that they exhibit obvious competitive strategies, and have in place requisite technology and financial strength for competitive advantage (cidb, 2012). These organisations would thus enable the researcher to collect data on competitive strategy, a key component of the research. Although some of the large companies were working internationally the study collected data only their South African operations, as the study focused on the South African construction industry and business environment.

1.7 Overview of research methodology

This study is domiciled within the discipline of construction management research (Holt & Goulding, 2014). In this field different paradigms compete for methodological pre-eminence, although the positivist approach appears to be dominant (Dainty, 2008). However, there is a strong argument to be made for methodological flexibility and heterogeneity. As put by Dainty (2008: 11), "a more expansive outlook towards mixing methodologies and research paradigms could yield deeper insights into, and understanding of, the way that practitioners 'do' management in the construction sector". Taking into account the benefits of methodological triangulation, this research therefore employed a mixed methods approach. This entails collecting, analysing and combining or mixing quantitative and qualitative data within a single study (Creswell, 2005). This study made use of a convergent parallel mixed-methods design, which involved the concurrent collection, analysis, and merging of both quantitative and qualitative results (Creswell, Plano Clark, Gutmann & Hanson, 2003; Creswell & Plano Clark, 2011).

The study started with a comprehensive review of the literature on the competitive strategies, organisational characteristics, business environment, and performance of construction organisations in South Africa. This laid the foundation for the development of a conceptual framework mapping the relationships between the constructs for the study. The literature

review also guided the development of the research questions and the specific methods designed to answer them, namely a quantitative questionnaire, and case studies using semi-structured interviews. Both of these methods aimed at collecting data on competitive strategies, resources and capabilities, organisational characteristics, business environment, and performance.

Analysis of the quantitative data was carried out using descriptive statistics, correlation analysis, factor analysis and ANOVA. Multiple regression analysis was used to establish relationships between the constructs, and Partial Least Square Structural Equation Modelling was used to develop the models showing the nature of association and the degree to which competitive strategies, resources and capabilities as well as organisational characteristics, under different environmental conditions, influence organisational performance. Qualitative analysis of the semi-structured interview data took the form of thematic analysis, i.e. extracting a series of themes from the data collected (Blaxter, Hughes & Tight, 2006). Combining the quantitative and qualitative findings, the study culminated in the development of a generic model for identifying competitive strategies, resources/capabilities, and organisational characteristics that can lead to superior organisational performance under varying environmental circumstances. More details on the methodology and methods are provided in Chapter Five of this thesis.

1.8 Limitations

The data collection process (i.e. the selection of the experts and construction organisations who participated) limited the degree to which the findings can be generalised, as the respondents may not be representative of all South African construction organisations in grades 7 to 9 of the cidb register. The archival data sourced, such as company financial statements, were not purposefully gathered for this research but form part of the realities studied. The accuracy of the findings hinged on the quality of the responses obtained, and may have been limited by unwillingness on the part of some respondents to disclose sensitive information about their companies.

1.9 Structure of the thesis

The thesis comprises nine chapters.

Chapter One outlines the thesis, summarising the research background, problem statement, research main question and sub-questions. The research aim and objectives are also presented, as well as the justification for and limitations of the research.

Chapter Two presents a comprehensive literature review on strategic management theories and strategic concepts. The chapter outlines the different schools of thought within strategic management theory and their approaches to the concept of strategy. The chapter explains the relevance of these theories to the construction industry, and applies them to the concerns of the present study.

Chapter Three discusses existing research on the contingent variables under consideration by this study. The chapter provides an overview of the construction industry, and discusses the literature on business environment, strategy, organisational characteristics and performance in the construction industry.

Chapter Four presents the theoretical underpinnings for the conceptual model to be developed in this study, centring on the relationships between the key research variables. Based on the gaps in knowledge identified from the review of existing literature, research hypotheses are developed and used to refine the research questions.

Chapter Five provides a comprehensive discussion of the research methodology. The chapter first discusses the overall research paradigm applied in this study and the specific mixed-methods approach that was used. It then details the methods used to select the sample, and to collect and analyse the data (both quantitative and qualitative).

Chapter Six presents the data from the quantitative part of the study. The results of statistical analyses are reported, and are interpreted with discussion of the pattern of relationships that exists amongst the research variables. The chapter considers the implications of these findings for the conceptual model.

Chapter Seven presents the data from the qualitative part of the study. The chapter discusses the results of the semi-structured interviews in the context of the research and literature reviewed.

Chapter Eight discusses the development and validation of the predictive model developed through the literature review. The chapter also present the results of Partial Least Square Structural Equation Modelling as well as model fitting.

Chapter Nine presents the overall conclusions to be drawn from the research findings. The chapter discusses the extent to which the study achieved its aims and objectives, and its contribution to the existing body of knowledge within the construction industry. That chapter also deals with the limitations of the research, and suggests areas for further study.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

This chapter starts with an overview of the South African construction industry with attentions on its structure and contributions to the economic growth of the country. It also examines the characteristics of the industry that differentiate it from other industries. With that as background it reviews the literature on strategy and gives brief explanations of different schools of thought with respect to developed strategy by an organisation. Competitive strategies are explained with focus on Mile and Snow's typologies and Porter's generic competitive strategies. The chapter reviews literature on strategic management practices in construction, strategic group analysis and explores the prevailing strategies used generally in construction industry.

2.2. South African construction industry

In South Africa, the construction industry is regarded as national asset that has to be nurtured, developed and transformed to meet both the local and global challenges posed by the competitive environment (cidb, 2004). The construction industry sector in South Africa has been described as an important factor in the economic growth of the nation (Dlungwana *et al.*, 2002). This is evidenced by the appreciable success and growth experienced by the sector in recent times such as increase in its total income from R100.4 million in 2004 to R268,100 million in 2011 (StatsSA, 2011). Continuous spending on infrastructures by government also enhances the status of the industry and its contributions to national development. However, the prevailing industrial, economic and socio-cultural environments in South Africa presents a number of threats as well as opportunities to the sector. The opportunities include the patronage by the public sector and the increase in government spending in the provision of infrastructure. For instance, government is to procure 18 strategic infrastructures to the amount of R4 trillion over the next 15 years (Black, 2008; Riaz, 2012). This makes existing and new contracts available to construction organisations to compete for and execute to make profit and thus grow. Other opportunities include an enabling business environment and lack of stringent entry barriers to construction organisations (cidb, 2012).

However, despite the attractive outlook for the industry, it is confronted with a number of threats which have significant effects on its performance (Bowen, Pearl & Akintoye, 2007; Tobin, 2006). The industry has over 30 laws that have direct impact on its operation (cidb, 2004). These laws include: Preferential Procurement Policy Framework Act, 2000- which provides for the creation of categories of preference in the award of contracts to enhance the development of organisations owned and managed by Historically Disadvantaged Individuals (HDI) in South Africa. Another example is the Broad-Based Black Economic Empowerment Act, 2004- which creates a legislative framework for promoting economic empowerment to black South Africans and provides code of practice related to procurement criteria and guidelines. These laws impact on the industry capabilities, performance and competitiveness; it appears to have negative effects on Foreign Direct Investment (FDI) which represents the main source of development capital for emerging markets in the current world economy (Veloso, 2008).

Other threats include a lack of competition environment, corruption and economic instability (Bowen *et al*., 2007; Tobin, 2006). South Africa business environment is believed to have a well-controlled and improved competition system orchestrated by the Competition Commission (Gasa, 2012). The Competition Act No 89 of 1998 highlights various anti-competitive behaviour and obstructive business practices such as price fixing, predatory pricing and collusive tendering as well as manipulations by dominant organisations who have a market share of 35% or above (Gasa, 2012). As a result of efforts to suppress such practices, it can be suggested that construction organisations operate in an industry that is well regulated and prevented from obstructive business procedures. However, government legislation gives preferences to black owned construction organisations through black economic empowerment, many of which have no technical expertise to execute the construction work (Martin & Root, 2012).These threats and many other factors identified in the literature such as lack of management skills, resources and capabilities has resulted in a continued decrease in the industry contributions to the Gross Domestic Product (GDP) over the years as shown in Figure 2.1. The industry contribution to the GDP was around 5% in 2006 and this has continuously dropped over the years to about 2.6% in 2012.

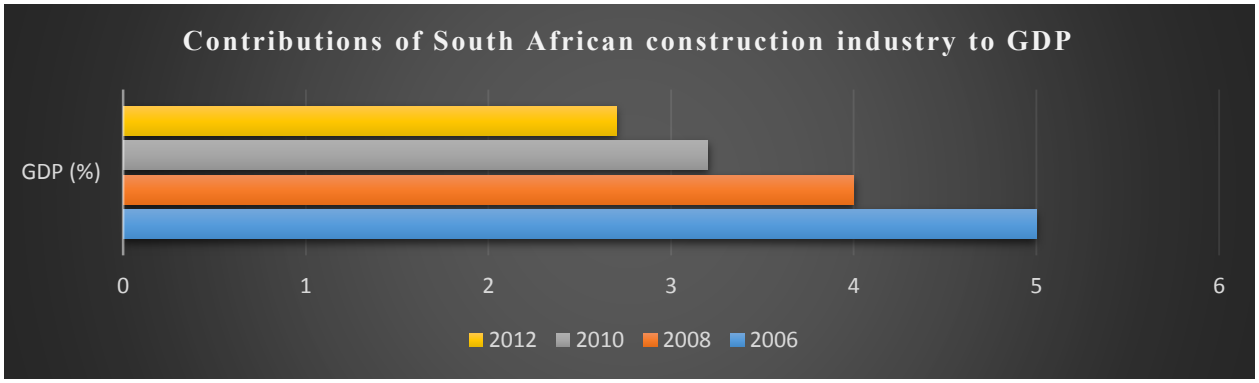

Figure 2. 1: Contributions of South African construction industry to GDP

2.2.1 Profile of South African construction industry

The South African construction industry's primary concern is to meet national construction demand, promote national social and economic development objectives of government, enhance industry performance and competitiveness, and deliver value for money to the stakeholders (cidb, 2004). According to Bowen *et al.* (2007), the South African construction industry is entrenched in UK practice in terms of its structure, ordinances and procurement routes. In order to achieve this, the Construction Industry Development Board (cidb) was established by Act 38 of 2000 (cidb, 2004). The cidb was tasked with the responsibility of playing the leadership role; reforming and improving the sector; providing a code of conduct; registering contractors and overseeing the performance of the industry (cidb, 2004).

In order to improve the industry performance, construction organisations are classified by cidb into six classes of works based on specialisation, resources and capability; and nine grades with respect to size of project a contractor can bid to execute. The class of works are civil engineering, general building, specialist works, mechanical and electrical services and the grading is grade 1 to 9. Table 2.1 and 2.2; show the classification of works and the grading criteria respectively. These classifications create competition among construction organisations. The grading of contractors is determined by their financial and work capability. The financial capability is in terms of turnover, value of work completed and the amount of working capital at the disposal of the contractor to finance the project. This is ascertained by the liquid cash available, balance from bank, leveraged loans etc.

The work capability of contractor is ascertained by the largest contract executed, the current class of construction works, number of employees on the payroll (professionals) and

conformity to appropriate statutory requirements. This grading is used by government at national, provincial and municipal levels and by state owned enterprises to consider contractors for a specific construction works contract. Table 2.1 gives the criteria used by cidb in grading construction organisations. The grading is based on financial and work capability as discussed earlier in this section.

Table 2. 1: Grading criteria for contractors

Grade	Tender Value Range (R'000)	Turnover	Largest Contract (R'000)	Available Capital
1	0.2M			
2	0.65M		0.15M	
3	2.0M	1.0M	0.50M	0.10M
4	4.0M	2.0M	1.0M	0.20M
5	6.5M	3.25M	1.6M	0.65M
6	13.0M	7.8M	3.25M	1.3M
7	40.0M	24.0M	10.0M	4.0M
8	130.0M	90.0M	32.5M	13.0M
9	>130.0M	270.0M	100.M	40.0M

Sources: cidb (2011)

[Note: "The cidb calculates available capital by adding any financial sponsorship to the sum of the net asset value of a contractor as indicated in the most recent financial statements. Net Asset Value is the difference between the total assets and total liabilities of a company as reflected in the company's most recent financial statements (cidb, 2011)".]

Table 2.2 shows the total number of contractors registered and active on the cidb Register of contractors as at April 2013. From this table it could be seen that the South African construction industry pyramid is as might be expected in that the highest number of contractors are located at the base of the pyramid, the number drops progressively as the pyramid rises (cidb, 2012). In this economic reality each of the operators within the pyramid plays their roles according to the dictates of the market (cidb, 2012).

Table 2. 2: Distribution of contractors based on class of works

Grade	CE	EB	EP	GB	ME	SW	Total Grades
2	1469	118	121	1953	200	466	4327
3	610	78	78	584	88	130	1568
4	785	142	192	822	140	153	2234
5	667	131	252	622	205	230	2107
6	701	35	78	593	85	72	1564
7	226	29	44	208	45	31	583
8	89	4	13	86	16	5	213
9	43	2	18	27	18	13	121
Total	**4590**	**539**	**796**	**4895**	**797**	**1100**	**12717**

CE- Civil Engineering; EB (Building installation) ME- Mechanical Engineering; SW- Specialist Works& EP (Infrastructure installation)- Electrical Engineering; GB- General Building;
Sources: Cidb (April, 2013)(available: www.cidb.org.za)

2.3 Characteristics of the construction industry

Windapo and Cattell (2011) defines construction industry "as that sector of the economy which plans, designs, constructs, alters, maintains, repairs and eventually demolishes buildings of all kinds, architectural, structural and civil engineering works, mechanical and electrical engineering structures and other similar works." From this definition, the construction industry could be regarded as a unique industry that is characterised by project and array of organisations that come together on *ad hoc* basis for a particular task (Giritli & Oraz, 2004). Few authors have identified those characteristics of the construction industry that distinguished it from all other industries (Harvey & Asworth, 1993; Cheah & Chew, 2005; US National Research Council, (NRC) 2009). These unique characteristics include: project characteristics, contractual arrangement, project life cycle, organisation, stakeholders, construction process and the operating environment factors (Harvey & Ashworth,1993; NRC, 2009) which are discussed as follows.

Construction organisations and project characteristics. The pyramidal shape of the construction industry structure shows that construction organisations range from relatively small, specialised organisations to large organisations operating nationally and internationally. In South Africa, contractors in Grades 7 to 9 on the cidb register consist of only 7% of the total number of contractor registrated in Grades 2 and above (cidb, 2012). The features of projects also differ from those of projects in other industries. These characteristics according to NRC

(2009) include: the nature of project owners; level of sophistication required and their involvement in the construction process; the complex nature of the projects; source and amount of financial capital; required skilled labour; employment of specialty equipment and materials; the design and engineering processes and the technical know-how required, etc.

Stakeholders. The definition of the construction industry given above illustrates that construction projects comprise of different sets of stakeholders: project owners, end-users, design teams (architects, engineers, interior designers), building team (general contractors, subcontractors, skilled labours, unskilled labours), suppliers, manufacturers, and operators, as well as project financiers, legal representatives, insurance and financial sponsorships and others (NRC, 2009). Each of these stakeholders, often from different parent organisations, come together for a specific project with objectives and motives for participating in the project (Giritli & Oraz, 2004). South Africa condustry is not an exception in this respect. This differentiate the construction industry from manufacturing or other service industries with relatively permanent structures.

Construction processes. The process of construction commences with owners realising the need for commisioning a construction project. South Africa, like other countries of the world adopts the generic methods and the standard set of processes and procedures for procurement systems that are fair, equitable, transparent, competitive and cost-effective when pursuing implementation of construction projects within the construction industry (Thwala & Mathonsi, 2012). The process of realising a construction project from that point is complex, involving different stakeholders at different times, and duration. The time taken before delivering the constructed facility may be 3 or 4 years; and as such functional or operating circumstances and stakeholders may change as the project progresses (NRC, 2009).

Operating Environment. Construction project stakeholders operate in an uncertain environment under increasing pressure to deliver projects within schedule and on cost (Harvey & Ashworth,1993; NRC, 2009). The complexities that surround project delivery, the project-based nature of the industry, the multitude of organisations or individuals involved on a temporary basis, and the level of the financial risk, often lead to adversarial relationships among the parties (Giritli & Oraz, 2004; NRC, 2009). This makes the operating environment of many projects full of disputes, with claims and counter claims made concerning time, cost and performance guarantees (NRC, 2009). However, in South Africa, the organisations in the

industry operate in a low-profit margin environment which places additional pressure on their strategic decisions relating to capacity, tender activity and pricing which emphasises the need for excellent project execution and close out (SA construction, 2013).

As highlighted by Cheah and Chew (2005), other characteristics of the construction industry that have implications on its strategic orientation includes: high fragmentation, limited economies of scale, low entry barrier, sensitive environmental factors, complex relationship between contractual situations and delivery methods of project, local business and the human aspects. Figure 2.2 shows these characteristics making up the industrial context of construction.

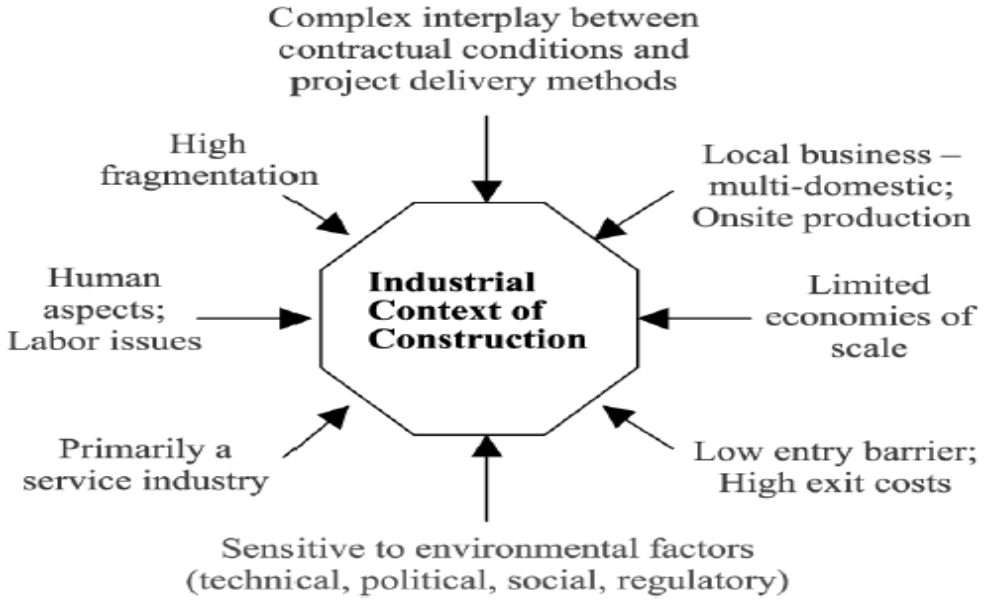

Figure 2. 2: characteristic of the construction industry with strategic implications (source: Cheah & Chew, 2005).

2.4 Competitiveness in construction

Globally, the concept of competitiveness in construction has received appreciable research attention from both practitioners and researchers in the construction industry (Flanagan Lu, Shen & Jewell 2007; Lu, 2006; Tan *et al*., 2012). Lu (2006: 25) defines a construction organisation's competiveness "as the ability of an organisation to bid successfully for construction projects, to provide construction services with superior quality, time or costs and with shorter time than its domestic and international competitors, and in the long-run to consistently achieve superior organisational performance". The components of this definition and the increasing research effort to establish the competitiveness of organisations in the

construction industry indicate the concept as a predictor of an organisation's performance or its ability to survive in a turbulent competitive construction business environment.

Traditionally, competitiveness of construction organisations has been measured using the lowest tender price as basis for awarding contracts (Drew, Ho & Skitmore, 2001; Jennings & Holt, 1998). However, in their investigation of client's tender selection process in the UK construction industry Wong, Holt and Cooper (2000) suggest that though price consideration is essential in determining competitiveness, it has to be combined with the ability of the contractor to meet numerous project objectives. Lu (2006) argues that a model that is rooted in Porter's competitive theory- generic strategy should provide the basis for understanding and measuring contractor's competitiveness.

2.4.1 Competitive strategy

The relevance of competitive strategy to management of business across industries and within the construction industry in particular has been widely researched (Price, 2003; Kale & Arditi, 2003; Li and Ling, 2012). Competitive strategies are often referred to as business-level strategies which provide significant advantages in explaining competitiveness of business in terms of profitabilty and long-term organisational performance (Nandakumar, 2008). There are two main classifications of strategies in use in construction: Mile and Snow (1978) strategy typologies and Porter (1980; 1985) generic competitive strategies. This study adopted Porter's (1980) generic competitive strategies model because of its precise structure, popularity and wide application in the construction industry (Betts and Ofori, 1992; Li and Ling, 2012; Price, 2003; Tan *et al*., 2012). To provide better insight into the competitive strategies, this section first defines strategy, presents different schools of thought for strategies utilised by organisations, examines Mile and Snows (1978) typologies as well Porter (1980) generic competitive strategies and discusses their relevance to the study.

2.4.1.1 Definition of strategy

Many researchers have given different interpretation to the concept of strategy, some viewed strategy as ways how a business enterprise achieves and attains competitive advantage outperforms their competitors (Barney, 1997; Crook, Ketchen, Comb & Todd, 2008; Hitt, Ireland, & Hoskisson, 2003; Porter, 1996; Teece, Pisano & Shuen 1997). Other authors see strategy is a way of linking an organisation to its environment and this is evident in their

definitions (e.g. Miles & Snow, 1978; Mintzberg, 1979). Yet other definitions are all encompassing and more extensive in that they seem to integrate some of the already mentioned ideas of competitive advantage, allocation of resources etc. (Johnson, Scholes, & Whittington, 2008; Thompson & Strickland, 2001).

Since it appears that strategy is a complex and multifaceted concept that cannot be constrained to a single definition (Junnonen, 1998), managers retain the notion that strategy encompasses everything that is essential to entrench its importance. Junnonen (1998) then sums up all these evidences and ideas to conclude that strategy constitutes the logic underlying the interactions between an organisation and its environment, which interactions tailor its resources deployment in attaining overall objectives. From the foregoing, this research defines strategy as:

an organisation's main outline for achieving its long-term objectives or targets, following well-defined guidelines or plans for achieving those objectives in a way that explains the business in which the organisation chooses to operate, how it will respond to changes in market conditions, the reason for its existence, where it intends to be in future and its stated overall direction for growth.

2.4.1.2 Mintzberg's schools of thought

Mintzberg and Walter (1985) viewed the process of strategy formation in an organisation and defined the process to operationalise and investigate the concept of strategy and how it is formed within an organisation. However, since the inception of formal study of strategic management science as a field of endeavour over half a century ago, many schools of thought have developed (Mintzberg, Lampel & Ahlstrand, 1998). Mintzberg *et al.* (1998) classify strategy under ten schools of thought based on these evolved strategy process. These include; Design School, Planning School Positioning School, Entrepreneurial School, Cognitive School, Learning School, Power School, Cultural School, Environmental School and Configuration School.

These ten schools of thought are classified into prescriptive and descriptive. Mintzberg *et al.* (1998) consider that the prescriptive schools consists of the first three schools with design school as the foundation on which the other two are built while the remaining seven schools are considered to be descriptive. However, Mintzberg, Lampel, Quinn and Ghoshal (2003) interestingly provide a link between the ten schools and the current approach to strategy in an

extensive manner. They link strategic manoeuvring to power and positioning schools, the resources-based view relates the cultural school to learning. Hamald and Prahald's (1994) theory of dynamic capabilities was regarded as a hybrid of learning and design schools. The ten schools of thought are discussed below, based on Mintzberg *et al.* (1998; 1999) in Table 2.3

Table 2. 3: Mintzberg's Ten Schools of Thought about Strategy Formation

	Model	Approach	Theoretical Basis	Intended message	Realised message
1	The Design School: A process of conception	Clear and unique strategies are formulated. The internal situation of the organisation is used to match the external environment.	Architecture as a metaphor	Fit	Think (strategy making as case study
2	The Planning School: A formal process	A rigorous set of steps are taken, from the analysis situation to the execution of the strategy	Urban Planning system theory, cybernetics	Formalise	Program rather than formulate
3	The Positioning School: An analytical process	It places the business within the context of its industry and looks at how the organisation can improve its strategic positioning within that industry	Industrial organisation and military strategy	Analyse	Calculate rather than create or commit
4	The Entrepreneurial School: A visionary process	The visionary process takes place within the mind of the charismatic founder or leader of an organisation. Relies heavily on intuition, judgement, wisdom, experience and insight	Economics theory	Envision	Centralised then hope
5	The Cognitive School: A mental process	Analyses how people perceive patterns and process information. Concentrates on what is happening in the mind of the strategist and how he processes the information	Psychology	Cope or create	Worry being unable to cope in either case
6	The Learning School An emergent process	Management pays close attention over time to what does work and what does not work. They incorporate 'lessons learned' into their overall plan of action.	Education. Learning Theory	Learn	Play rather than pursue
7	The Power School A process of negotiation	The strategy is developed as a process of negotiation between power holders within the company, and/or between the company and its external stakeholders.	Political Science	Promote	Hard rather than share

	Model	Approach	Theoretical Basis	Intended message	Realised message
8	The Cultural School A collective process	Tries to involve various groups and departments within the company. Strategy formation is viewed as a fundamentally collective and cooperative process.	Anthropology	Coalesce	Perpetuate rather than change
9	The Environmental School: A reactive process	The strategy is a response to the challenges imposed by the external environment. Where the other schools see the environment as a factor, the Environmental School sees it as an actor.	Biology	React	Capitulate rather than confront
10	The Configuration School: A process of transformation	Strategy formation is a process of transforming the organisation from one type of decision-making structure to another.	Context	Integrate. Transform	Lump together rather than split. Adapt

2.4.1.3 Miles and Snow's organisational typology

Since Miles and Snow's (1978) introduction of their generic taxonomy of strategies, many studies have sought to classify organisational business strategies into typologies, to enhance understanding of how organisations perform in their interactions with their environment. It is perceived that an organisation's culture provides the guiding principles that give direction to its strategic performance. The organisational culture also forms the basis of how an organisation relates with its business environment to accomplish its mission. Miles and Snow treat the taxonomy of strategies as the pattern of relationships among strategy, technology, organisational structure, and process so that entire organisations can be viewed as integrated wholes in dynamic interaction with their environments. Miles and Snow's (1978) organisational typologies align organisations strategy with its business environment and argue that organisations can be found within any of the four categories; namely defenders, protectors, analysers, and reactors. Table 2.4 provides a summary of their strategy typologies.

From the analysis in Table 2.4, it appears that three strategic types (Prospectors, Defenders, and Analysers') are consistent and effective in their strategic selection and will perform with efficient and appropriate implementation. Organisations in those categories usually perform better than organisations categorised as reactors who lack strategy and structure that is consistent with the dynamism and uncertainties of the operating environment (Miles & Snow, 1978; O'Regan & Ghobadian, 2006). The nature of the business world today no longer lends itself to this type of typology unless the organisation exists in a monopolistic market. Miles & Snow (1978) raise the issue to what strategies do organisations adopt to survive in the turbulent business environment? O'Regan and Ghobadian (2006) note that Miles and Snow argue that every organisation has a trait that is dominant and which becomes apparent as a result of the influence exerted by the main decision makers within the organisation, based on their perceived view of the industry environment. O'Regan and Ghobadian (2006) continue that the choice of whether an organisation is to be proactive or reactive depends largely on the view of its key decision makers.

Table 2. 4:A summary of Miles and Snow's organisational typologies and traits

Organisational typology	Main focus	Distinctive Traits
Prospector	Entrepreneurial, innovative, new opportunity orientated, responsive to environmental Changes and uncertainties	External orientation, device environment that is more dynamics than other firms in the same industry, maximising new opportunities. Maintaining a reputation as innovative ideas in product and market development is given more priority than profit regulation. Welcomes change and sees the environment as "uncertain". Rarely attains the level of efficiency required to maximize economies of scale Exhibits a high degree of consistency among its solutions to the three problems of adaptation.
Defender	Defends existing market (often a niche market), technological efficiency is central to defender	Narrow range of products/services, strive to prevent competition Internal orientation based on efficiency, competitiveness in pricing Measures and avoiding unnecessary risk. Introduction of high quality product, Centralised control and a functional structure are common, the strength of defender lies in its ability tofully concentrate on certain segment of the market
Analyser	Hybrid of prospector and defender types, their main concern is on flexibility and stability amidst turbulent market	Operates well in both stable and dynamic markets. Uses efficiency and increased production in stable markets and innovates in dynamic markets, minimised risk and maximised opportunities Are usually managed through matrix structures of organisation they benefit from centralized control and functional specialization while providing the flexibility and stability usually accompanying product-oriented structures, they appraise performance based on effective and efficient measures and enjoy steady market growth
Reactor	Reacts to change, main concern is on how to adjust to the business environment's dynamism and uncertainties.	Short term planning reacts to others actions. Inappropriate reaction to business environment. Change inevitably presents some difficulties. There is difficulty to judge. Attempt to capture new market with or degree of expertise. They lack clear focus due their structure and processes that may easily be disorganised

Adapted from : Miles, Snow, Meyer and Coleman, Jr. (1978); Thomas and Ramaswamy (1996); O'Regan and Ghobadian (2006)

2.4.1.4 Porter's Generic Strategies

Porter (1985) contends that profitability of any organisation is a subject of its positioning within the industry where it operates. Porter argues that for an organisation to have a sustained competitive advantage, some basics of competitive business have to be given adequate attention. Porter (1980) asserts that there are three basic potentially successful generic strategies an organisation can adopt. These generic strategies are: (i) overall cost leadership strategy- ensures superior profits by lowering costs; (ii) differentiation strategy- Create a product or service that is regarded industry-wide as being unique; and (ii) focus for outperforming competitors in an industry- concentrate on limited market or market segment. Price and Newson (2003) affirm that all three generic strategies were present within the construction industry and practiced by many organisations.

Parnell (2013) argued that in adopting any of these strategies, managements of an organisation face the task of ascertaining whether the focus of their business unit should be by tailoring its efforts to a certain subgroup or segment of the industry in which it operates or seek to serve the entire market as a whole. Hence, managements decide whether to adopt a low-cost strategy in their business unit by competing primarily through lowering its costs relative to those of its competitors or to adopt a differentiation strategy by seeking to offer unique and/or unusual products and services (Parnell, 2013).

Porter contended that cost leadership strategy and differentiation strategy are mutually exclusive because differentiation efforts tend to erode a low-cost structure by raising production, promotional, and other expenses (Parnell, 2013). Adoption of the two strategies in the form of an integrated strategy was referred to "stuck in the middle" by Porter. Kim, Nam and Stimpert (2004), asserted that an organisation can only be "stuck in the middle" for two reasons: (i) if it fails to develop a strategy in at least one of the three directions, it may become stuck in the middle leading to poor performance; and (ii) if it tries to pursue more than one generic strategy, simultaneously it can become stuck in the middle. The three generic competitive strategies are discussed below:

Cost leadership

This entails attaining economies of scale by becoming the lowest cost provider of products or services in an industry (Porter, 1980; 1985). Organisations that use this approach compete

favourably based on price with its competitors and consequently a strategy of lowering cost becomes its focus. An organisation can only sustain cost leadership strategy if it remains the cost leader in its cohort and it is not challenged in that position. Porter (1985) therefore, posits that if a organisation can sustain cost leadership strategy, it will perform better than other competitors in the industry. Parnell (2013) argued that organisations that operate cost leadership are those that produce basic products and services for a mass market, and this is only beneficial when customers are price-sensitive. Table 2.5 illustrates Porter's generic competitive strategies. Within the construction industry, many processes fall under low-cost strategy such as traditional procurement through tendering procedure, which is aimed at attaining minimum cost for construction works (Price & Newson, 2003). However, low-cost business may result in a detrimental price war which may threaten sustained leadership (Parnell, 2013). Technological advancements may also outstrip the production capabilities and thus, eliminate competition advantage (Parnell, 2013). The adoption of this strategy often leads to acrimonious relationships among parties to the contract due to the shortcomings in the traditional approach where requisite attention is not paid to the whole-life value of the facility from the angle of the customer (Price & Newson, 2003).

Differentiation Strategy

A differentiation business calls for the development of a product or service that is perceived to be unique by the industry customers. Differentiation involves sustaining the uniqueness of the product in the industry along dimensions that are widely valued by clients, (such as quality and green issues) (Edum-Fotwe, 1995). As a result of the adversarial relationship that often greets the adoption of low-cost strategies in the construction industry; many organisations have repositioned to tilt their strategic direction towards differentiation strategies (Price & Newson, 2003). The strategy may be in terms of cost differentiation or innovation in the processes. Many construction organisations introduced innovative ideas such as a concessional contract approach to differentiate themselves from their rivals. These approaches include design and build, facility management or construction management as identified in Price & Newson (2003).

Continuous sustaining of a differentiation strategy leads to above average performance which enables the business i to charge a premium price to recover the cost of achieving the uniqueness (Porter, 1985). Parnell (2013) emphasised that there are a number of prospective grounds for maintaining differentiation strategy, the most easily identified of which is those attributes of

the product or the product mix which includes both objective and subjective differences in product characteristics.

Focus Strategy

This involves tailoring of an organisation's strategy to focus on a certain segment of the market in an attempt to achieve either product differentiation or cost advantage. Parnell (2013) classified focus strategy into Focus-low-cost strategy and focus-differentiation strategy. Cost leadership-focused strategy affords an organisation the opportunities of having a greater understanding of the market niche, and enhances an organisation's specialisation in satisfying the needs of the segment with lower investment in resources. An organisation that adopts a focused strategy enjoys a considerable level of patronage and a high degree of customer's loyalty, which often keeps competitors at bay or dissuades rivals from direct competition because of their sensitivity to price. However, Parnell (2013) argued that organisations practicing this strategy are more likely to be vulnerable to technological obsolescence, which limits their prospects for growth. The organisation may also face the danger of imitation or may outgrow the segment with inherent risk of decline in the focused market niche.

Organisations that employ the differentiation-focused strategy produce highly differentiated products or services for the specialized needs of a market niche and this enables them charge a premium price, which can be passed on to the customers because of the valued unique attributes of the product (Parnell, 2013; Porter, 1985). This strategy is given prominence within the construction industry as a result of the integration of construction activities along the entire construction supply chain. Construction organisations are focusing on adding value to the whole construction processes by adopting more focused strategies employing their capabilities and strategic core competences in many areas including procurement using Private Finance Initiative, strategic alliance, Design-Build-Operate etc. (Price & Newson, 2003). Parnell (2013) argued further that differentiation-focused strategy is the most appropriate strategy an organisation can adopt when market demand is inelastic. This is as a result of the premium prices charged on differentiated products, which prices are often, needed to support efforts to serve a limited market segment. It was argued that a cost leadership strategy is always desirable but is not accentuated as organisations may face the danger of changes in the target market or acquire a reputation for specialisation that may constrain movement into a new sector (Porter, 1980; Kickul & Gundry, 2002).

Stuck in the middle

Porter argued that cost leadership strategy and differentiation strategy are mutually exclusive, and further, that organisations that are able to succeed by adopting multiple strategies do so by creating separate business units for each strategy (Porter, 1980; 1985). He contended that they often separate the strategies into different units with different policies and even different cultures, when this is achieved an organisation is unlikely to become "stuck in the middle". However, more recent studies contradict Porter's position that an organisation will be "stuck in the middle" when it combines more than one strategy (e.g. Barney, 2011; Mintzberg *et al*. 2003; Parnell, Lester & Menefee, 2000). Barney (2011) argued that organisations have adopted both cost leadership and differentiation strategy successfully, for example McDonalds adopted both differentiation and cost leadership strategies to become market share and cost leaders in the fast-food industry. This is consistent with Parnell *et al.*'s (2000) argument that the two strategies are not necessarily mutually exclusive; some businesses begin with a differentiation strategy and develop economies of scale along the line by integrating low costs strategy as they grow**.** This argument by Barney extends the current discourse on generic strategies and their impact on organisation's performance.

Table 2. 5: Illustrates Porter's Generic Strategies (adapted from Parnell, 2013)

	Competitive Advantage			
	Emphasis on Entire Market or Niche	**Emphasis on Low cost Advantage**	**Emphasis on product Uniqueness**	**Emphasis on Low Costs and Differentiation**
Competitive scope	**Broad Target (Entire Industry)**	Cost Leadership Strategy	Differentiation Strategy	Low-Cost–Differentiation Strategy
	Narrow Target (Market Niche)	Focus-low-cost Strategy	Focus-differentiation Strategy	Focus–Low-Cost-Differentiation Strategy

2.4.1.5 Relevance of the contemporary theories to the study

This research was conducted within the construction industry and the various schools of thought were employed to determine the perception and understanding of organisational

management on their strategic orientation. The theories were used to explore whether competitive strategies adopted by organisations assist them in obtaining fit with their business environment using their internal strength to neutralize the external threats. For example, Mintzberg *et al*. (1998) prescriptive and descriptive methodology was described to lay the foundation for the model proposed by this research, which endeavours to establish how an organisation can achieve superior performance through a strategic fit between the external opportunities and internal capabilities within the business environment. This fit enables an organisation to understudy certain situational and device-driven ways of responding to their context. The methodology throws light on how organisations assess both the external opportunities and threats as well as strengths and weaknesses (SWOT) using the main business success criteria and core competencies to develop a strategy that permits them to respond favourably to environmental changes. Accordingly, Porter (1980) argued that the essence of strategy making is to relate business organisation to its environment. Within that context, to achieve a sustainable competitive advantage, organisations need to adopt one of the generic competitive strategies- *cost-leadership, differentiation or focus strategies or probably stuck in the middle*. This analysis becomes necessary because the previous work of Betts and Ofori (1992) and Price and Newson (2003) indicated that Porter's generic strategies are relevant to the construction industry and that these strategies are indeed being practiced by construction organisations in the UK. In addition the recent work of Nandakumar, Ghobadian, O'Regan (2010; 2011) and Tan *et al.* (2012) provide a better understanding of the impact of environmental factors and dimensions on competitive strategies across industries.

However, different organisations have different mission and vision, and as such pursue different strategic goals (Edum-Fotwe, 1995). To identify and classify organisations based on their attributes and response to changes in the environment, Miles and Snow's typology of strategy was considered pertinent. This typology is of considerable importance as it helps in explaining how organisations cope with the constraints imposed by the rapidly changing and complex business environment on their strategic direction. It is important to note that growth orientation is not the same across organisations; some organisations strive to expand while the priority of others is their survival (Windapo & Cattell, 2011). Although, Mile and Snow (1978) argued that every business organisation has at least an implicit strategy that is responsible for or at least impacts on their performance. O'Regan (2000) supported that by arguing that a better understanding of the strategic orientation of organisations can assist researchers in drawing conclusive analytical inferences. For instance, Miles and Snow's typology offers useful insight

into the strategic characteristics which can be used to identify the character and behaviour of different organisations as detailed out in Table 2.4.

2.4.2. Suggested strategies applicable to the construction

The preceding sections in this chapter have examined typologies of strategy, strategic management in construction, different schools of thought and the rationale for implementing strategies in construction organisations. This research acknowledged that each type of the generic competitive strategies identified by Porter (1980) may be considered suitable under different situations, and that organisations may experience worst circumstances when they are stuck in the middle, which is the situation with many construction organisations (Price, 2003).

However, considering the dynamic nature and the characteristics of the construction industry itemised in section 2.3, this research argued that effective strategic posture for construction organisations could be located within both the prescriptive and descriptive schools of thought postulated by Mintzberg (1998). The best strategy to be developed by construction organisations should therefore involve the hybrid of positioning and learning schools of thought. Positioning school suggests that an organisation needs to place its business within the context of its industry and looks at how it can improve its strategic positioning within that industry, while the learning school allows management of an organisation to pay meaningful attention over time to what does work and what does not work for the organisation by integrating the 'lessons learned' into their overall plan of action. The fusion of these two schools of thought (positioning and learning) to enhance organisational performance could be explained better by the industrial organisation, resource-based view and dynamic capabilities theories which will be discussed in the next chapter (Chapter 3, see section 3.7).

Therefore, having explored the three main types of competitive strategies, it is argued in this thesis that hybrid strategies (combination of strategy) will proffer better solutions to the problem being encountered by organisations when pure generic strategy is adopted. Hybrid or mixed or combination strategies are the ones which adopt cost-leadership and differentiation elements; focused differentiation strategy or focused cost-leadership strategy (Allen & Helms, 2006). When a construction organisation has a unique package such as design and build offered to a targeted or specific market segment it is focused differentiation strategy, but when a low cost strategy is adopted to a targeted specific market niche it is referred to as focused cost-leadership strategy.

Furthermore, in dealing with competitive forces of the environment evidence have shown that low costs and differentiation may be best combination of strategies (e.g. Beal &Yasai-Ardekani, 2000). Hybrid strategies are identified as appropriate strategies to be pursued by organisations to achieve improved performance (Pertusa-Ortega, Molina-Azorı´n & Claver-Corte´s, 2009). However, Porter (1980) argued that generic strategies are mutually exclusive, that organisation can only pursue one at a time, but studies have shown that this may not be the situation. Organisation that adopts single strategy is more vulnerable to serious gaps or weaknesses in product offerings and ignored important customer needs due to strategic specialization (Pertusa-Ortega *et al*., 2009). Also there is likelihood of danger in pure strategies because competitors can imitate them more easily than hybrid strategies; and lastly by focusing on a single strength, organisations tend to reduce their resilience and adaptability (Pertusa-Ortega *et al*., 2009; Miller, 1992).

Therefore, combining more than one strategies has inherent advantages that can benefit construction organisations and may lead to improved position in the industry (Allen & Helms, 2006). Firstly, construction organisation through cost-leadership strategy may invest its profit in aggressive marketing of services or products attributes to enhance its differentiation stance; and at the same time increase the demand and the market share of the organisation which will ensure exploitation of certain economies of scale (Pertusa-Ortega *et al*., 2009). Secondly, there are certain construction business practices or attributes such as cost, quality, innovation and time with which organisation can influence their performance by adopting hybrid strategies (Kale & Arditi, 2003). Also, the continuous change in the driving forces in the market environment, technological developments and specifically, their resultant effects on the supply and demand situations make hybrid strategies more relevant in the construction industry for survival and growth of organisations.

2.5 Strategic management practices in the construction industry

The construction industry is identified as one of most complex and unstable industry environment with unique attributes that make effective formulation and implementation of strategies difficult (Balatbat, Lin & Carmichael 2011; Egan, 1998; Soetanto *et al*., 2007). The concept of business or corporate strategy is not entirely new in construction and it is considered as an important paradigm in the construction industry (Cakmak & Tas, 2012). In spite of the acknowledgement of the importance of the concept and its resonance with construction

organisations performance and survival, little application is found in literature especially in African context. This section discusses the strategic management practices and strategy in construction using studies of the construction industry conducted over a few decades.

2.5.1 Strategic management in construction

The focus of strategic management has changed from a primary emphasis on strategic planning to a comprehensive management process that assists organisations to achieve strategic change by aligning organisational direction with organisational objectives (Price *et al*., 2003). This change became necessary as a result of rapid change and competitiveness of the construction business environment that promotes strategic thinking (McGeorge & Zou, 2013). In the US, Chinowsky (2000) investigated the role of strategic management in construction organisations and stressed that the traditional underlying principle of management in construction requires the ability to plan and complete projects. However, Chinowsky acknowledged that pressures on construction organisations to complete projects within cost, schedule time and standard quality can make a better understanding of the broad background of strategic management concept incomprehensible. He thus concluded that it is these broader circumstances that make strategic management a vital issue for construction organisations to achieve superior performance.

Prior to the research conducted by Chinowsky, some researchers such as Lansley (1987), Betts and Ofori (1994) and Edum-Fotwe (1995) had long recognised the need for a paradigmatic shift in the economic and construction business planning models from short term to long-term strategic planning for performance improvement. They argued that this shift had become necessary due to the fragmented nature of the industry and various challenges posed by the construction business environment and competition between organisations.

Consequently, scholars and researchers in the field of construction management have designed frameworks that proffer solutions to problematic and complex issues of adopting strategic management in construction (Cheah, Kang & Chew, 2007; Price, 2003). Some of the frameworks entrenched the assertion of Chinowsky on the need for strategic management perspectives in the construction industry (Cheah *et al*., 2007; Keith, Omer, Ekrem, Mehmet & Selim, 2008; Price *et al*., 2003). However, many of these studies were country specific; in particular many were in the context of developed countries such as the US, where for example Chinowsky and Meredith (2000) explained the need for stakeholders to focus attention on

strategic management issues in construction rather than elementary planning for executing projects. Other studies in developed countries include Price *et al.*'s (2003) research that focused on the UK construction industry in a study that examined how strategic management practices within the industry changes but did not uncover the present status of the concept comprehensively. In the developing countries researchers such as Dansoh (2005) examined the strategic planning practices of construction organisations in Ghana and found that although some organisations have embraced the implementation of strategic planning, others need to employ the concept to enhance their chances of surviving in the turbulent construction business environment.

In similar research focusing on Turkish construction industry Kazaz and Ulubeyli, (2009) examined strategic management practices of construction organisations to reveal that the strategic management practices amongst organisations had serious flaws Nonetheless, despite the shortcomings identified by Kazaz and Ulubeyli (2009), Keith *et al*. (2008) provided a study that compared strategic planning practices in companies from the UK and Turkey to indicate that Turkish construction organisations are more advantageously inclined to strategic planning practices than their UK counterparts. In today business environment, studies have stressed the impact of uncertainty and the project-based nature of environment construction organisations function that makes it necessary for construction organisations to become more strategically responsive (Chinowsky & Byrd, 2001; Dansoh, 2005). Despite this identification of the significance of strategic management in the literature, research still indicates that the application of the concept of strategy remain at a low-level and more specifically, among SMEs (Price *et al*., 2003). They contended further that although large construction organisations accept that strategic management practices can improve performance and efficiency within their organisations, they are yet to formalise the strategic process. Therefore, in spite of the importance and contributions of these concepts in improving performance as witnessed in other industries, studies have revealed that the construction industry is yet to fully engage in strategic management to evolve long-term planning (Price, 2003; Soetanto *et al*., 2007).

2.5.2 Strategic cluster analysis in construction

A strategic cluster was identified by Porter (1980) as a group of organisations operating in an industry with analogous strategy along established strategic dimensions. Dikmen, Birgonul and Budayan (2009) identified strategic dimensions as those involving strategic decision-making processes that best individualize organisations based on the adopted strategy, scope and mode

of competition. In order to achieve sustainable competitive advantage, organisations need to maintain a strategic position and pursuing a strategy that will enhance the achievement of organisational goals. This assertion is consistent with Porter (1980) who contended that in analysing the structure of an industry, strategic cluster analysis remains the first measure to give insight into the strategies of all the important rivals.

In spite of the advantage to researchers of clustering organisations so as to enable them understand their strategic orientations within the industry and appraise their scope and mode of competition in enhancing their performance, little empirical construction industry research exists on the subject. Kale and Arditi (2002) examined the concept of competitive positioning and its influence on organisational performance within the United States construction industry and they classified organisations based on their scope and mode of competing. The study found that the grouping of construction organisations on basis of mode and scope of competition helped in identifying difficulties confronting organisations and that their performance was significantly linked to their mode of competition. Claver, Molina and Tari (2003) explored strategic groups and performance of house-building organisations in the Spanish construction sector. Their research explored the four clusters identified using Porter's (1980) generic strategies with 88 organisations, their empirical results showed no significant differences in the performance of the clusters.

Dikmen *et al*. (2009) investigated whether groups of construction organisations in Turkish construction industry had similar strategic positions, using both theoretical framework and statistical analysis. Their study revealed that significant differences existed in the performance of the three clusters identified and they argued that this finding can help to formulate strategies that improve performance through understanding the strategic orientation of organisations within the competitive environment.

More recently, Tan *et al*. (2012) explored the competition environment, strategy and performance of construction organisations in the Hong Kong construction industry. The study adopted Porter's (1980) generic typology of business strategies and classified organisations based on their background and strategic orientations. Tan *et al*. (2012) aligned the clusters with Mile and Snow's (1978) taxonomies: defender, analyser, prospector and reactors and argued these are realities within the context of the study. The main objective of this study was not to validate these studies but to examine and understand whether different strategic clusters exist

within the South African construction industry and to establish whether the models linked with strategic orientation of organisations can offer explanation for performance heterogeneity.

2.5.3 Prevailing business/corporate strategy

Some earlier studies on business management issues or corporate strategy in construction organisations were conducted in the context of the developed countries' construction industry in the 1970s. Lansley (1983; 1987) expanded the discussion and developed a framework that links organisation the business environment with the business structure, management style and problem-solving skills to respond to the differences in the pattern of demand for construction organisations. In managing construction organisation businesses, Ramsay (1989) examined the effect of business objectives and strategy on large construction organisations in the UK. Ramsay (1989) observed that some of the large construction organisations acknowledged the need for strategy without knowing that they implicitly aligned to one. Ramsay also noted that many construction organisations had different businesses in order to spread their business risks through a growth strategy involving - merger and acquisition, and diversification. A few other studies also identified diversification as one of the strategies being used by large construction organisations in the developed countries including (Ibrahim, Ibrahim & Kabir, 2009; Langford & Male, 2001). Although, Mills (1997) considered the diversification of US construction organisations into unrelated areas as disastrous and urged them to diversify within construction related areas or to diversify geographically.

Hillebrandt and Cannon (1990) built on the framework of Ramsay and analysed different approaches to management of construction businesses by large UK civil engineering and building construction organisations. Their study revealed that many construction organisations confuse strategy with strategic planning which mostly is short-termed and focuses on budgeting and forward planning. This was also the position of Price (2003), that there should be a clear distinction between short and long term strategies. However, Hillebrandt, Cannon and Lansley (1995) observed that the main focus of construction organisations in the UK in the 1980s which centred mainly on growth and diversification had changed due to economic downturn into focusing on core business and improving profitability. These major changes in UK large construction organisation's strategy as identified by Hillebrandt *et al*. (1995) include: focus on core businesses, greater concentrations on international markets, narrowing organisational structure and downsizing of permanent personnel. Barrie (1999) corroborated the observations

of Hillebrandt *et al.* (1995) and identified the breakup of conglomerates built in the 1980s by construction organisations to concentrate on core businesses.

Hasegawa (1988) examined the competitive strategies of Japanese construction organisations and identified six growth strategies being adopted to obtain strategic fit to a changing international construction environment. The strategies as identified by Hasegawa (1988) include: development of new technologies, penetration of the existing construction market, strengthening of companies' competence, development of new business, and new market segments and financial strategies. Venegas and Alarcon (1997) selected long-term strategies for construction organisations in Chile to develop a mathematical model to predict the impact of a combination of strategies or a given strategy on the selected results of organisations. They aimed to allow a comparison of various alternatives for making decisions. This is in line with the argument of Langford and Male (2001) that strategy evolves in construction organisations based their earlier strategic decisions.

Betts and Ofori (1992), Price and Newson (2003) noted that Porter's generic strategies are relevant to construction enterprises and examples of these generic strategies are found in many construction organisations. Mohammed (1994) affirmed Betts and Ofori (1992) conclusion by examining the linkage between competitive strategies of construction organisation in the UK and their financial performance. Their research revealed strategies similar to the generic strategies postulated by Porter but identified low-cost or cost control and flexibility of resources as the simplest coping strategies among the organisations studied. Junnonen (1998) suggested that construction organisation strategy should consist of organisational scope of activities (corporate and business strategy), mobilization of resources (human resources and other assets), and the normative character. Ofori and Chan (2000) examined the growth of construction enterprise in Singapore over the period of 18 years and found that construction organisations used diversification strategy to grow which changed over time to focus strategy during economic recession. Dikmen and Birgnoul (2003) in a research conducted in the Turkish construction industry examined the strategic perspectives of construction organisations. They concluded that organisations predominantly use differentiation strategy, in particular those in housing and building but those functioning mainly in the infrastructure sector adopt a cost leadership strategy. Although, Dikmen and Birgnoul (2003) acknowledged that there are two major categories of organisation within the construction industry based on their competitive

strategy: organisations that strive to achieve low cost advantage through cost reduction and those that differentiate the services/product to maximize client's satisfaction.

Kale and Arditi (2003) built on the competitive strategy and neo-institution scholars' assertions, and explored their proposition that competitive and institutional forces have effects on construction organisations operations and performance in the US construction industry. These research findings indicate that organisations compete in the construction market by differentiating their services or product from that of their competitors; this may be through price differentiation, innovation, quality or completion on schedule. Ling, Ibbs and Cuervo (2005) investigated the effective business strategies and entry mode requirements of international architectural, engineering and construction organisations (AEC) for managing construction projects in China. Their research suggested that AEC organisations need to adopt a differentiation strategy by providing superior services if they are to gain competitive advantage and capture market to manage projects. In Australia, Manley, McFallan and Kajewski (2009) examined the relationship between construction organisation strategies and innovation. Their research considered key management functions within construction organisations (Employees, marketing, technology, knowledge, and relationship) as the strategies used by organisations to improve their core competencies and drive innovation. The study revealed that marketing strategies exhibited the least significant support for innovative ideas within the organisations studied, while other strategies showed significant support for innovation. In a recent study conducted by Li and Ling (2012) to identify the critical strategies used by Chinese architectural, engineering and construction (AEC) firms to achieve their level of profitability, it was found that profitable AEC organisation adopted practices that made them flexible, adaptable and differentiate them from their industry rivals instead of pursuing cost-leadership or focus strategy.

A plethora of studies have also been carried out on global strategies used by construction organisations to operate in different markets. For example Abdul-Rashid (1994), analysed the market conditions of global strategies used by large construction organisation and found that many organisations viewed the entire universe as a single market to formulate a competitive strategy that will position them well to challenge globally. Whitla, Walters and Davies (2006) explored the use of global strategies among British construction organisations using Yip's framework for global strategy, their research revealed weak driving force for global strategy and concluded that most organisations that operate internationally make use of little integrated

global strategies. Also, recently, Zhao, Shen and Zuo (2009) examined the strategy-performance linkages of Chinese construction organisations using SWOT analysis to identify suitable business strategies used to operate in the international market. Their finding show that low cost strategy using low cost workforce, materials, equipment and machinery, and specialty expertise were the main strength of Chinese construction organisations. However, other literature reveals that large construction organisations adopt growth strategies- merger, acquisition, and diversification, demand creation strategy, strategic alliance, project finance as well as differentiation strategy in the international construction business market (Abdul-Rashid, 1994; Hasegawa, 1988; Ofori, 1996; Yang & Lu, 2013).

2.6 Summary

Strategic management and organisational analysis have been central in discussions within the construction industry for over two decades. The lack of long-term planning or strategic focus and poor performance of construction organisations necessitate many discussions and studies. This part of the thesis reviewed the South African construction industry and its structure to understand the nature of competitiveness of organisations operating in the industry. The chapter reviewed the literature on competitive strategies giving due considerations to the different schools of thought within strategic management studies. Hybrid strategies (combination of strategy) was suggested to be best strategy construction organisation can pursue to proffer better solutions to the problem being encountered by organisations when pure generic strategy is adopted. The chapter presented literature on strategy and strategic management practices in the construction industry.

The next chapter builds on foundations laid by different schools of thought as discussed above, to address the constructs used in this research with attention to issues involving the business environment, organisational characteristics, resources capabilities and performance of construction organisations.

CHAPTER 3
CAUSES OF PERFORMANCE DIFFERENTIALS IN THE CONSTRUCTION INDUSTRY

3.1 Introduction

This chapter reviews literature on the construction industry environment, its organisational characteristics, resources and capability, and organisational performance. It focuses on the impact of both the internal and external competitive environment on strategies and performance of construction organisations. The chapter also emphasises the significance of selecting adequate and appropriate measures of organisational performance with adequate attention to the peculiarity and characteristics of the construction industry. The relationship between the constructs as it relates to performance in the construction contex was also established. It also presents the study's theoretical underpinning and provides an overview of significant theoretical perspective in the strategic management field that focus on organisational performance. The different theoretical perspectives that can help organisations build competitive advantage and effective strategies include Industrial Organisation theory (IO), Resource-Based View theory (RBV), dynamic capabilities view and the contingency theory.

3.2 Business environment

The strategies adopted by any organisation are determined generally by its organisational environment (Sener, 2012). This is why researchers and practitoners have devouted much attention to the study on the relationship between organisation and its environment in strategic management. The business environment may be divided into task or immediate environment and the remote or general environment (Yap, Abdul Rahid & Sapuan, 2011). According to Yap *et al*. (2011) the task environment comprises industry specific factors and includes all organisations that the one under consideration must interrelate or network with to ensure survival and grasp growth opportunities. The remote environment comprises of external factors that impact on all organisations operating in the environment; it includes the state of the economy, advancement in technology, political instability, regulatory frameworks, demographic structure and socio-cultural settings.

Fahey and Narayanan (1986) viewed the task environment as being closer to organisation as it is industry specific and argued that this closeness makes it easier for organisations to obtain

relevant information about the threats that inhibit their businesses as well as the opportunities that present themselves and thus to understand the timing of growth. Priem, Love and Shaffer (2002) contended that the task environment is complex and due to its rapid changes it expresses the essence of organisation better than does the general environment. Yap *et al*. (2011) agreed with this view and drew evidence in support of the argument that the task environment is connected to a higher degree of strategic indecision which may directly influence the organisation. The task environment was thus considered to be more significant for competitive strategy, particularly in setting organisational objectives and their achievement (Yap *et al*., 2011).

However, Priem *et al*. (2002) asserted that the threats and opportunities presented by the general environment appear to be more conceptual than is the task environment and that the effectiveness of growth is complex to assess. This gave support to Bourgeois (1980) findings that organisation's general environment exhibits an indirect influence on organisational performance and is related to business strategy. This study explores these issues in the context of the construction industry accepting the need to find out what differentiates the construction business environment from that of other industries.

3.2.1 Construction business environment

As in all other industries, construction organisations operate in business environments and thus careful attention is required by managers to identify those environmental forces that form the basis of their strategies (Sener, 2012). This is corroborated Harrison and Pelletier (1998), who posited that business organisations do not exist in the vacuum; rather they interact with the environment and it is the environment that gives organisations their means of survival. Shirazi, Langford and Rowlinson (1996) viewed the construction business environment as the interaction between an organisation's internal and external factors, which consist of pertinent physical and social factors both within and outside the organisation's boundaries; and influence decisions by individuals and units of activity. Construction organisation is project-based and as such, researchers conceptualised the construction business environment as a construction *projects* business environment ,which is typified as having a fragmented nature in terms of operations and where stakeholder's relationships as highly adversarial, due to the complexities and absence of real cooperation (Cicmil & Marshall, 2005). Xue, Shen, and Ren (2010) highlighted that studies on business environment in construction industry that previously

focused mainly on construction project or stage are changing due to trends of globalisation of the construction market as well as micro changes in organisation management. Chen (2003) stated that although complete explanation of external environment is usually prohibitive, the need to explore the influence of environment on organisation is clear and widely received among researchers.

3.2.2 Measuring the business environments

Sharfman and Dean (1991) contended that lack of widely accepted single measures or single constructs of organisational environment makes it difficult to have a comprehensive literature on the impact of environment on organisation. However, the theoretical perspectives to understanding the impact of environment on organisation have been advanced by previous researchers: these include the decision/task uncertainty (e.g. Duncan, 1972; Lawrence & Lorsch, 1967); the environmental circumstance and the perceived instability (e.g. Duncan, 1972); and the environment as a source of resources (e.g. Thompson, 1967). In the last three decades a few researcher have been able to combine some of these conflicting views together (e.g. Dess & Beard, 1984; Miller, 1987). Despite the lack of consensus on a single measure of environment, organisational researchers have considered the environment as an important sources of organisational exigencies (Lawrence & Lorsch, 1967; Thompson, 1967).

According to Chen (2003), the understanding of the environmental effects on organisations can be considered from two streams of approaches. The first stream considers the influence of uncertainty on organisational structures, while the second approach uses dimensions to describe the importance of environmental forces for the organisation. The other debate found in literature on environment concentrates on whether organisational environment should be considered as an objective reality or conceptual event (Chen, 2003). The observed measures are founded on survey items which allow researchers to exemplify the organisation's environment from the perspective of organisation members, while objective measures are based on archival data obtained at industry level (Dess & Beard, 1984; Dickson & Weaver, 1997; Duncan, 1972).

This research identifies the forces in the organisation's business environment and examines how these environments together with the effect of environmental dimensions, influence organisational performance. Tung (1979) defined environmental dimensions as the attributes

of the environment confronting the central unit. Business environments are shaped by environmental dimensions which are considered to be vital characteristics of the business environment in relation to strategic decision-making (Chi *et al*., 2009). Sharfman and Dean (1991) provided a comprehensive literature review on the different measures of environment and categorised them under three main heading: complexity, dynamism/stability and resources availability as shown in Table 3.1.

Table 3. 1: Conceptualisation of the environment

Previous research works on environment	Complexity	Dynamism/stability	Resources availability
March and Simon (1958)			Munificence
Emery and Trist (1965)	Complexity Routineity	Instability	
Thompson (1967)	Heterogeneity	Dynamism	
Child (1972)	Complexity	Variability	Illiberality
Mintzberg (1979)	Complexity Diversity	Stability	Hostility
Aldrich (1979)	Concentration Heterogeneity	Stability Turbulence	Capacity concensus
Tung (1979)	Complexity Routineity	Instability	
Dess and Beard (1984)	Complexity	Dynamism	Munificence
Miller (1987)	Heterogeneity	Dynamism	Hostility
Ward, Duray, Leong and Sum (1995)		Dynamism	Munificence
Goll and Rasheed (1997)		Dynamism	Munificence
Nandakumar (2008)	Heterogeneity	Dynamism	Hostility

Adapted from Sharfman and Dean (1991).

Mainly from the mainstream strategic management literature, a plethora of authors have classified environmental latent variables that jointly shape the business environment in a variety of ways. Some previous research efforts such as Dess and Beard (1984) considered three environmental dimensions, namely munificence, dynamism and complexity to empirically examine the transactions between organisations and their environment. Miller (1987) examined the external business environments using dynamism, hostility and heterogeneity as separate measures. Also, Goll and Rasheed (1997) adopted environmental munificence and dynamism and investigated their moderating roles on the association between organisational performance and process rationality. This was also the position of Baum and Wally (2003) who examined the speed of decision-making and organisational performance.

Nandakumar (2008) measures the moderating effect of business environment on the strength of relationship between business level strategy and organisational performance using three dimensions: hostility, dynamism and heterogeneity. This research measured the environment dimensions using the variables of munificence, dynamism, complexity and competitive intensity. These dimensions were adopted in order to ascertain the level at which the environmental factors hinder the understanding of the environment; the degree of predictability of the environment, and the extent to which the available resources in the environment can support growth of organisations relative the number of competitors. However, competitive intensity did not surface on the list of measures of the environment, but this was introduced as a result of the characteristics and the competitive nature of the construction industry. These dimensions are considered as some of the factors contributing to environmental challenges which provides many of the constraints, uncertainties, and contingencies for organisation transacting in the business environment (Dess & Beard, 1984)

3.2.2.1 Dimensions of business environment

The dimensions of the business environment according to Duncan (1972) and Sharfman and Dean (1991), reflect a history of productive research on environmental forces and theory which can lay the foundation for further research. In this research, these dimensions: munificence, dynamism, complexity and competitive intensity are adopted to form the basis for the measures of the environments.

Munificence

This refers to the existence of myriad of resources and opportunities that abound in the environment where organisations operate, and the competition among organisations for those opportunities and resources. Sougata (2004) classified the environmental influences as intensity of market forces and regulatory intensity. Ward *et al*. (1995) referred to environmental munificence as the degree to which an environment supports growth of organizations within it, and which is sometime measured on a reverse scale as environmental hostility. According to Achrol and Stern (1988) munificence describes the resource-carrying capacity of organisations; the degree to which environmental resources are available and accessible to organisations including the level of those resources. Lawless and Finch (1989) argued that the dimension of munificence is one of the most critical latent variables of the business environment in relation to strategic decision making process, and they asserted that low munificence means scarcity of

resources, whereas high munificence implies an abundance of resources. This research differentiates between environmental munificence and hostility, and uses different constructs (see methodology chapter) to measure them in an organisation.

Dynamism

This refers to the uncertainties in the business environment. Chi *et al*., (2009), Kabadayi *et al*., (2007) and Nandakumar *et al*. (2010) viewed environmental dynamism as the rate or speed of change in an industry as well as the predictability or uncertainty in the business environment, stemming from the actions of industry rivals or customers and including advances in technology and shifts in aggregate demand. Shirazi *et al*. (1996) argued that construction business environments range from simple to complex. They contended that variation of in the business environment may be caused by many factors such as unexpected occurrences. Shirazi *et al*. (1996) identified the following factors as the likely cause of environmental dynamism or volatility. These were: variations and client initiated change orders, workforce shortages and changes in project objectives. These can be regarded as factors influencing the project environment. In a broader perspective, construction business dynamism may be influenced by unpredictable factors such national income, output growth, price indices, inflation, unemployment rates, incomplete information and changes in government policies (Shirazi *et al*., 1996).

Complexity

Environmental complexity is referred to as heterogeneity by some researchers including Aldrich (1979) and Nandakumar (2008), it explains whether the components in the business environment are analogous to one another or different. Environmental complexity hinges on the level of ambiguity of the strategist's responsibility and the need to focus on whether environmental factors considered in the strategic decision making process are many, few in number, similar or different (Shirazi *et al*., 1996). Within the construction industry sector, Shirazi *et al.* (1996) measured the dimension of complexity by the number of subcontractors to be coordinated, and the nature of activities involved. Others include the extent of involvement of the client or his representatives including the input requirement for controlling and programming the task. Some of these factors are project-environment based. Kabadayi *et al.* (2007) considered that environmental complexity describes the number and diversity of rivals, suppliers, buyers, customers, subcontractors, consultants, financiers, marketing intermediaries, government agencies the civil society, and other environmental factors that

organisations decision makers need to consider in formulating their strategy. This study measures complex environment with items relating to the management of supply chain, knowledge about the need of construction clients and the extent of market segmentation in the industry.

Competitive intensity

Competitive intensity is described as the degree to which an organisation functions in markets that limit their potential growth opportunities due to a high number of obviously competing organisations (Auh & Menguc, 2005). In other words competitive intensity is viewed as the degree to which threats and hostility experienced by organisations and which emanate from the environment, influence the regulatory and market forces as a (Chi *et al*., 2009; Nandakumar *et al*., 2010). Shirazi *et al*. (1996) argued that environmental hostility impacts on the structure of organisations through expectedness of the work and the rate of reactions to issues. This is because an environment with higher competition requires a quick response by the organisations. Stiff competition gives rise to hostility and may result in an adversarial relationship among parties within the business environment. A hostile business environment favours a centralised organisational structure and direct supervision for close coordination of activities and control of subordinates.

3.3 Organisational characteristics

Construction organisation today like all other organisations are facing increasingly intense competition in their business environment due to improved information systems and the globalisation of the industry as well as the turbulent nature of the construction niche market. As a result, considerable attention has been given to the characteristics of their organisations in terms of managerial orientations, in the belief that management is an essential element in achieving both long-term and short-term objectives of the organisation. Organisational characteristics influence organisational performance, but the nature of the relationship might depend upon the strategic circumstances confronting the organisation, and these are crucial issues for organisational practice and theory most especially in the construction industry (Govindarajan, 1989).

This study considers organisational characteristic as the distinctive features of an organisation that enable it to perform its statutory roles, take strategic decisions and get recognition as a

business entity within the industry. Organisational characteristic is the least tacit of concepts in the construction business, in spite of its significance in improving organisations performance. The intention of this study is to employ another perspective to organisational characteristics other than culture or leadership style in construction, which has received appreciable research attention (Ankrah, Proverbs & Debrah, 2009; Chan & Chan 2005; Limsila & Ogunlana, 2008; Toor & Ofori, 2008). Some studies suggested that organisational effectiveness and efficiency are contingent upon three key organisational characteristics: decision-making style, management style, and organisational structure (e.g. Lansley, 1987; Potosky & Ramakrishna, 2002). Hence, this study explored and established the significance of management style, decision-making style and organisational structure in construction context.

3.3.1 Management style

Management is as an essential aspect of organisations. Khandwalla (1976) viewed management style as the functional set of principles and norms relating to management embraced by the organisation's key decision makers. Mittler (2002) however, summarised management style as the general approach of leadership used by a manager to effectively achieve organisation's fundamental strategic objectives or superior performance. The definition given by Mittler (2002) indicated that leadership and management style are considered as similar concepts by many researchers. Some authors such as Kotter (1990) contended that management and leadership style are dissimilar; the dominating function of management is to give directive and ensure consistency in organisations, whereas the main role of leadership is to provide needed change and movement within an organisation. In spite of the distinctions in the concepts as highlighted by Kotter (1990), Cunningham (1986, in Sadler, 2003) argued that there is partial overlap between leadership and management style and thus stated that leadership is an essential part of the role of management and may not be viewed as a distinct entity. Barr and Dowding (2012) asserted that terms leadership and management style may be used alternately because the differences between the concepts are not obvious. Therefore, the two terms may be used interchangeably in this study to denote the same thing.

Within organisations the thinking is that managers have formal power to give orders with respect the work of a given set of employees and that they are formally accountable for the quality of that work and what it costs to get it done (Barr & Dowding, 2012). However, people within the organisation differ in terms of values, and they will move within organisations while

retaining their core values; as it is almost impossible to have a general consensus on principles and beliefs within an organisation (Khandwalla, 1976; Mittler, 2002). In an effort to confront the threats, opportunities and organisation-wide challenges, some kind of agreement on fundamental principles about what is good or bad management philosophy is likely to come into view within the echelons of the top management (Khandwalla, 1976). Therefore, Khandwalla (1976) contended that when these principles or management style emerge and are transmuted into action, that will establish the organisation's strategy for growth and survival, and thus in turn shape the structure and manner of operations of the organisation.

Construction organisations operate in an industry that places great responsibilities on them to deliver expensive constructed facilities within schedule, cost, and quality while meeting sophisticated safety expectations of construction clients. These responsibilities have put enormous pressure on many of these organisations in recent times of unparalleled changing business climate resulting in intense competition among organisations with diminishing market and challenges (Edum-Fotwe & McCaffer, 2000). These uncertainties and complexities in the business environment require managers at all levels to adopt an appropriate management style to survive in the turbulent marketplace.

To face up these challenges, a number of interesting studies have been conducted on the management philosophy or style of leadership. Many of these studies are either in the educational sector, manufacturing industries or marketing research domains, addressing the permanent structure of organisation (e.g. Bolman & Deal, 1991; Giritli & Oraz, 2004; Goleman, 2000; Khandwalla, 1976). Nonetheless, there are only a few studies that directly focused the construction industry (Lansley, 1987; 1994; Giritli & Oraz, 2004; Limsila & Ogunlana, 2008). This dearth of research may be as a result of lack of understanding of the construction industry by social science researchers and vice versa (Langford, Fellows, Hancock & Gale, 1995). However, Lansley (1994) asserted that many of the management styles considered most successful in other industries may not be optimal in the construction context because of its inherent features. The characteristics exhibited by the construction industry are unique in that the organisations operating in it are defined as project-based organisations (Giritli & Oraz, 2004). Therefore, in order to understand the relevance of management style to the industry, the characteristics that distinguish the construction industry from other industries need to be understood. Some of these characteristics have been identified and discussed in Chapter Two, they include among other things: contractual arrangements; project

characteristics; project life-cycle; and business environmental factors (Harvey & Ashworth, 1993: NRC, 2009). As a result of these distinctive features, Giritli and Oraz (2004) asserted that the project-based nature of the construction industry where different organisations come together for a particular project and are disbanded afterwards, will definitely have a significant impact on the managerial leadership styles of the organisations.

Literature has established different classifications of styles of management such as McGregor's Theory X and Theory Y, Khandwalla's (1976) seven styles of management namely: entrepreneurial style professional management style; bureaucratic management style; conservative-traditional style; professional-bureaucratic style; professional - entrepreneurial style; and collegial style. Hersey and Blanchard (1982) identified four leadership styles with varying degrees of supportive and directive attributes which can assist managers in matching the relevant style with the maturity level of subordinates. Transformational and transactional styles have been found to be prevalent in the construction industry (Chan & Chan 2005; Limsila & Ogunlana, 2008), while Lansley (1994) argued that success in construction is hinged on styles of management that are more authoritative and task oriented than in other industries. The main objective in this study is to identify where construction organisations in South Africa are on the management style continuum between exploitative authoritative to fully participative, and then to explore the environmental forces that often dictate the suitable direction for the organisation to take.

Therefore, this study adopted Likert's classification of management styles: exploitative-authoritative, benevolent-authoritative, consultative and participative (Amzat & Idris, 2012). This categorisation is employed in this study because it provides an insight into the general beliefs of human behaviour (Amzat & Idris, 2011), most importantly in the construction industry where innovative ideas are required of a leader in relating with employees. In addition, participative and directive styles (authoritative) have been validated in the construction industry to be suitable for different situations (Nicholas, 1990; Naum, 2001). The classification explains the patterns of relationship and the role styles played between subordinates and management of an organisation. Based on Likert's categorisation of management styles, the styles are described by Amzat and Idris (2012) as follows:

3.3.1.1 Exploitative authoritative style

This management style emphasises adherence by employees to the decision of the top management. The flow of decision is from top to bottom with the rational origination of decisions from the top management being assertive in solving problems that are strategic to the organisations objective. According to Morris and Pavett (1992) subordinates do not have participatory roles to take in decision making process but instead are compelled to focus on completing assignments they are saddled with, with threats to get the work done. This approach is grounded in the classical approach to management, where decisions are exclusively taken at the top.

3.3.1.2 Benevolent authoritative style

This style allows subordinates to make contributions to the decision made by the top management with a reward to motivate the subordinate when a constructive input from them leads to greater results (Morris & Pavett, 1992). Subordinates are free to express themselves to the management within the limit of their duties with clarification from the manager of what their input should be.

3.3.1.3 Consultative style

This style is more democratic in the sense that it allows subordinates to participate in the decision making process with a reward. This type of management style improves interaction and involvement by subordinates, but with management having the final say and decision execution responsibility resting on the shoulders of the top management staff (Limsila & Ogunlana, 2008). This style encourages dual or bi-flow of information from the management to the subordinate due to freedom of expression, which provide a better environment for subordinates' participation than does the benevolent authoritative style of management (Giritli & Oraz, 2004).

3.3.1.4 Participative style

This style has become a classically approved theory in strategic business management literature. Employees are given the freedom to align their thinking to the strategic direction of the organisation and take total blame or applause for the results of their actions in meeting the desired outcome of the company (Pardo-del-Val, Martı´nez-Fuentes & Roig-Dobo´n, 2012). Pardo-del-Val and Lloyd (2003) contended that this management style permits management

and subordinates to exert their influences on the decision making process, in such a manner that constructive inputs are welcome from subordinates The participative style leaves room for freedom of speech, enhances team spirit building and gives every member a sense of belonging which is useful to help the organisation attain its strategic objectives and mission. Rewards serve as a motivation to workers for their effective contributions.

3.3.2 Decision-making style

As introduced above, effective decision-making or problem-solving is one of the most vital and common tasks that management and employees of organisations are involved in. Robin (1994; 1997) considered decision-making as the essence of the manager's job and an analytical element of organisational life. Decision-making is the underlying activity influencing organisational performance and as such the quality of managers' decision is a key determinant element of organisational performance (Russ, McNeilly & Comer, 1996). Managers' make decisions that have significant impact on their organisation's performance. Penrose (1995) and Burke and Steensma (1998) asserted that organisational business performance is strongly and positively associated with the effectiveness of managers decision-making. The way managers make decisions is termed the decision-making style, which has a bearing on the performance of organisation (Russ *et al*., 1996).

Rowe and Manson (1987) viewed decision-making style as a rational procedure that characterises the manner in which an individual or organisation approaches a problem and uses available useful information to make effective decisions. From another perspective, Driver, Brousseau and Hunsaker (1993) considered decision-making style as the acquired habits of decision-making and as the individual's trait mode of perceiving and reacting to decision-making tasks. Driver *et al*. (1993) continued that individuals are constant in their decision-making approach which suggests that individuals will exhibit primary decision-making style which may not be expressed completely within the organisation. For the purpose of this research, the definition of decision-making style is founded on the observations of researchers such as Barnard, (1947); Sayles, (1964; 1999) who argued that decision-making acts are attributable to organisational behaviour as contrasted to individual behaviour. Therefore, the working definition of decision-making style in this study is as a rational process that characterises an organisation's learned or acquired habits of solving problems using available relevant information to achieve organisational objectives. The variation of decision making

styles does not only depend on the environment in which the organisation operates but results from a dynamic and growing history of role-bounded interpersonal relationships (McCabe, 1987; Osborn, 1999). Unlike leadership or management style where great efforts have been made to examine its relevance in construction, decision-making style has not been explored and its link to organisational performance is yet to be fully established in the construction industry. The decision-maker is a problem-solver in an organisation (Russ *et al*., 1996) and as such problem-solving skills and decision-making styles are two closely related terms that both require inventiveness in recognising and creating available options. In the construction context, few studies have identified problem-solving skill as an essential attribute impacting on the organisations' effectiveness and as a key factor in achieving competitive advantage and efficiency (e.g. Edum-Fotwe & McCaffer, 2000; Lansley, 1987; 1994).

Russ *et al*. (1996) contended that the way management of an organisation make their decisions appears to influence the decision quality and the way both the subordinates and superiors will react to the decisions. They further asserted that when fellow workers are at ease with the decisions arrived at by managers, its execution is likely to proceed more effortlessly and its success may be high. Different techniques of improving decision-making and the quality of decisions have been identified in literature; these are called typologies of decision-making style. A number of decision-making styles typologies have been described. Barton and Martin (1994) highlighted the various models of decision-making styles to include rational model, non-rational model, satisficing model, incremental model, and garbage-can model. Scott and Bruce (1995) argued that the existing conceptualised framework used in decision-making style research was ambiguous and that it does not evolve useful instruments that integrate data from all the earlier studies on decision style. Based on the review of existing literature, four decision styles were identified namely: rational style, intuitive style, dependent style and avoidant style. This was validated among 1441 male military officers, and during the process of evaluating the data, a fifth style emerged which is regarded as spontaneous decision style. These styles are briefly discussed as follows:

The rational style is illustrated by an exhaustive search for information, consideration of various alternatives and analytical evaluation of them. An *intuitive style* is characterized by paying attention to details in the flow of information instead of a logical search for information and its processing has a tendency to rely on premonitions and feelings. *A dependent style* of decision-making is characterised by a search for and reliance on the advice and guidance from

colleagues or subordinates before making important decisions. *The avoidant style* is characterised by attempts to avoid decision-making whenever possible because of fear of failure. Lastly*, the spontaneous style* is characterised by a sense of immediacy and desire to complete decision making as soon as possible (Loo, 2000; Thunholm, 2004).

The construction industry is characterised by project based organisation, which compel organisations to bring together individuals or groups to work for a short period on a specific task either on part-time or full-time basis. The temporary nature of relationships has a significant impact on the decision-making style or problem-solving skills adopted by managers. The style of arriving at decisions in this situation requires a particular fusion of cognitive processes in order to transform information and experience into a course of action (Van Riel, 2003). These cognitive processes are often used to denote individual ways of thinking or practices central to the understanding of decision-making processes (Hunt, Krzystofiak, Meindl & Yousry, 1989). This study thus considers cognitive styles, cognitive abilities and personality as essential ingredients in choosing the appropriate decision-making style that will enhance organisational performance (So & Smith, 2003).

This research adopted Rowe and Mason's (1987) classifications of four decision styles: Analytical style; Behavioural; Conceptual; and Directive style, each being based on two independent dimensions of thinking: cognitive complexity and values orientation. This classification of styles was considered relevant to this study because they take into cognisance individual differences which are an important issue in the construction industry due to the nature of relationships. These styles are described by Rowe and Mason (1987) as follows:

3.3.2.1 Analytic style

This has the distinctive feature of a challenge-based achievement with complex reasoning attained through a methodical and slow decision making process.

3.3.2.2 Behavioural style

This style promotes effortless reasoning, individual orientation. It makes employees feel valued within the organisation by creating an enabling environment that allows compromise to be reached and enhances better communication.

3.3.2.3 Conceptual style

The achievement of the organisation is based on intrinsic rewards which are psychological, usually non-financial rewards that workers receive from performing their task meaningfully and successfully. These rewards include praises and recognition, which Thomas (2009) regarded as the reinforcements that keep workers actively self-encouraging and enhances their work engagement. This style improves the employee's orientation and encourages creativity and an idealistic environment.

3.3.2.4 Directive style

The characteristics of this style include authoritative power and dominant behaviour by the superior with clarity of purpose and simple reasoning or rational thinking (Amzat and Idris, 2012). Little is known empirically regarding the influence or relationship between decision-making styles, the kind of environment or organisational structure required to apply different styles accurately, or the circumstances under which a particular decision styles can effectively be employed to enhance organisational performance. Although decision-making style as an organisation's characteristics seems probably to be related to organisational performance, little or no empirical study has explored these relationships in the construction context.

3.3.4 Organisation structure

Ledbetter (2003) defined organisational structure as an established pattern of relationship among the components of parts of a company and the way a company is set-up which formally defines the framework of the organisations task and authority relationships. In another definition provided by Mansoor, Aslam, Barbu, Capusneanu, and Lodhi (2012) organizational structure is considered to be an organisation's chain of command and authoritative position. To synthesise from the two definitions, for the purpose of this research, organisational structure is considered from the perspective of how different parts of the organisation are arranged to suit the characteristics of the construction industry where the organisation operates. Hence, the definition of organisational structure given by Jones, George and Hill (1998) is adopted. Jones *et al*. (1998) define organisational structure as *a formal arrangement of task and management reporting relationships that coordinates and motivates organisation workers so that they work together to achieve organisational goals and objectives.*

The concept of organisational structure has its foundation in organisational theory dating back to the 1940s. This era was characterised by the traditional organisational structure which was considered to be tall, bureaucratic, pyramidal and centralised in nature with many levels of management and different lines of authority, rigid chains of command and narrow span of control (Schermerhorn, 1993). The two main types of traditional organisational structures are the functional and divisional structures. The functional structure is comprised of all the departments needed by an organisation to produce goods and services, while the divisional structure consists of separate business units each of which houses various functions and departments that work together to produce a specific product or service (Jones *et al*., 1998). These two different structures may be combined to form a hybrid structure which attempts to deal with different functioning needs of an organisation and to improve its ability to respond to different challenges or change in the environment (Jones *et al*., 1998). However, this type of structure is helpful in a very large organisation that has several operations and is aimed at exploring opportunities in its global operations (Anumba, Baugh & Khalfan, 2002). The traditional approach has been criticised because the belief "One cap fits all" is inapplicable in an organisational structure design seeing that no two organisations are entirely similar and that each faces unique challenges from its environment (Lawrence & Lorsch, 1967).

In the 1960s, the contingency approach to organisational theory evolved. The work of Burn and Stalker (1961) and Lawrence and Lorsch (1967) represent an emerging modern organisational theory. The contingency approach highlights that there is no uniform way of organising a firm and that the most appropriate type of organisational structure is dependent on the nature of work to be executed, the environmental situation and its attendant challenges (Scott, 2003). The contingency theory showed that the traditional approach to organisational structure was only relevant in some situations as it does not consider in its classifications some contingent elements such as the environment of the organisation, objectives and strategy, human resources, size and the technology at the disposal of the organisation (Anumba *et al*., 2002). In another research, Bucic and Gudergan (2004) argued that organisational structures can be discussed with reference to two key factors; formalisation and centralisation. This was supported by the findings of a study by Shiraz *et al.* (1996), which indicated that complex environment can lead to a greater decentralisation of authority through delegation.

However, many of these previous studies were conducted within the main stream of management research, so that there is dearth of empirical organisational research in

construction. Some studies that focused construction industry either considered the industry as a whole or viewed organisation as interaction between organisations (Shiraz *et al*., 1996; Anumba *et al*., 2002). For example, Lansley (1994) explored some organisational theories which were considered to be of value in understanding how organisation functions in construction. The study acknowledged many theories related to organisational structure which it was asserted, can be applied to help thinking in organisational issues in construction. However Lansley (1994) did not identify which part of the structure is most relevant to construction. Shiraz *et al*. (1996) examined organisational structure in the construction industry, but the focus of their research was on the influence of technology and environment on the structure of project organisation. In a related study, Anumba *et al*. (2002) investigated how organisational structure provides supports for concurrent engineering tasks in construction. Their study revealed that different structures are suitable in different environmental situations and that the industry still uses traditional and hierarchical organisational structures with large organisations tilting towards the adoption of a division corporate structure. It was however, concluded that despite the fact that the industry recognised that fragmentation is a problem in the industry, restructuring was not seen as a hindrance and thus, recommended a matrix type of organisational structure. None of these studies examined organisational structure from an organisation perspective, but they all acknowledged that the organisational structure has impact on organisation's performance. This is supported by Mansoor *et al*. (2012) and Martınez-Leon and Martınez-Garcia (2011), who contended that an ideal organisational structure is a recipe for superior performance since it impacts the organisation's ability to perform and respond effectively.

This study adopted the organisational structure taxonomy of Burns and Stalkers (1961), which classified organisational structures into two basic types: organic and mechanistic structures, consistent to differences in organisations' abilities to process information. Nandakumar *et al.* (2010) asserted that Burns and Stalkers' (1961) classification provides an easily understood framework for organisational type that matches certain contexts of environmental change or stability and are characterised with different attributes such as control, communication, organisational knowledge, task, prestige, governance and values. These two types of organisational structures are described as follows:

3.3.4.1 Mechanistic organisational structure

This is a structure within an organisation which explains how an organisation best fits into a stable environment with a clear, well-defined, centralised, vertical chain of command, control and line of authority (Nandakumar *et al.,* 2010). Asiddu (2011) compared the task and procedure of mechanistic organisational structures in an organisation to a machine, in which each functional part of the organization performs what it is designed to execute. A mechanistic organisation structure places a premium on the efficacy and routine operation of an organisation through formalisation, specialisation and standardization of the organisation's operations to eliminate breakdown of the process (Burns & Stalkers, 1961). This makes the bureaucratic and mechanistic structures well suited for mass production in a stable environment (Lam & Lundvall, 2006). Other characteristics of bureaucratic and mechanistic structures identified include:

- The structure exists in different hierarchical levels, where organisational vision originates from the top management to the subordinates, through a downwards communication process (Ahmed, 1998);
- Severe division of work that often leads to high work specialisation (Ahmed, 1998);
- Rigid departmental separation and operational grouping through high degree of horizontal differentiation, with specialised role responsibilities (Martınez-Leon & Martınez-Garcia, 2011);
- Organisational observance of formal rules and regulations leads to high formalisation (Martınez-Leon & Martınez-Garcia, 2011);
- The need for managers' to coordinate the organisational activities required to develop the vision of their planning control and continuous intervention in problem resolution, decision-making and management result in high centralisation and relational complexity (Hankinson, 1999).

3.3.4.2 Organic organisational structure

According to Asiddu (2011) organic structure refers to how organisations adapt or change their task, structures, and procedures to respond to the rapidly changing business environment. Organic structures are considered to be relevant in a dynamic, turbulent, and uncertain environment where organisational tasks or assignments are non-routine (Burns & Stalkers, 1961). For instance, for organisations to survive in an unpredictable environment, formalisation and standardisation may be difficult to realise, instead a pertinent, effectual, and apt reactions

to the environmental tasks is analytically essential. This is because organic and decentralised structures view organisations as social and complex entities, where individual and social forces compete and interact (Martınez-Leon & Martınez-Garcia, 2011). Organic and decentralised structure exhibits the following attributes:

- The structure is flat as vertical decision making is replaced by horizontal collaboration formed by top managers, strategic groups and multidisciplinary teamwork (Martınez-Leon & Martınez-Garcia, 2011);
- Proactive employee participation in organisational management as a result of decentralization of power and control encourages an open and trust-based culture (Hankinson, 1999).
- Participation of workers in the management and control of organisation results in low vertical differentiation (Martınez-Leon & Martınez-Garcia, 2011).

3.4. Organisational performance

Sirgy (2002) asserted that organisational performance is a complex construct which cannot be explored using a single method from a single field of study. This complex construct, according to Richard, Devinney, Yip and Johnson (2009) is important in enabling researchers and managers to assess organisations over time and compare them to competitors. Organisational performance is considered as the most essential criterion in evaluating organisations in terms of its environment and course of their actions (Richard *et al*., 2009). According to Wu (2009) and Laitinen (2002), performance is a measure of how effectively and efficiently a mechanism/process put in place by an organisation produces results in an outcome along a dimension determined á priori, with respect to a target. Performance measurement is a task undertaken by most organisations using different approaches. Different techniques have been employed globally to measure performance, and it has attracted attention of researchers in recent years (Niven, 2000). It has been asserted that irrespective of the methods used, effective organisational performance system should encompass all performance indicators that are pertinent for the existence and growth of an organisation, and the means through which organisational goals are achieved (Kaplan & Norton, 1996; Laitinen, 2002; Moullin, 2003).

3.4.1 Organisational performance measurement

Yang *et al*. (2010) posited that performance measurement in the context of construction centres on three different levels namely; project, company and stakeholders' levels. However, perspectives of performance measurement have expanded beyond project performance measurement which focuses on cost, time and quality, to organisational performance measurement which has been evaluated using different methods (Kale & Arditi, 2002; Tan *et al.*, 2012). The competitive nature of the construction business environment is thus placing pressure on construction organisations to remodel their strategies in order to survive, and become more competitive in the construction marketplace (Dansoh, 2005; Tan *et al*., 2012). Hence, organisations across the globe have realised the importance of measuring their performance so as to provide a set of equally supporting indicators that is capable of directing the organisation's attention to strategically important areas that will explain how its strategies translate into organisational results (Kaplan & Norton, 2001; Spencer, Joiner & Salmon, 2009).

Chenhall (2005) argued that the recent theories on performance measurement system have an increased strategic focus in a way that operationalise strategy into a consistent set of performance measures to guide managers behaviour in the direction of key organisational results. However, Parnell, O'Regan and Ghobadian (2006) contended that there is lack of consensus on how organisational performance should be measured. Traditionally, for the past decades, organisational performance has been measured with focus on three main approaches: (1) financial measures of performance; (2) market-based performance measures; and (3) qualitative measures such as subjective measure in form of customers' and stakeholder satisfaction with performance (Parnell, Lester & Menefee, 2000; Parnell *et al*., 2006; Richard *et al*., 2009). Financial measures of performance remained the most widely accepted method of measuring organisational performance by strategy-performance researchers (Geringer, Beamish & daCosta, 1989). The next measure which has received appreciable recognition in the literature is market-based measures of performance. Indeed market value added has been flaunted as the most accurate way of assessing how efficiently an organisation creates wealth for its shareholders (Parnell *et al*., 2006). Lastly, qualitative measures of performance involve the use of subjective measures and this has been given prominence in strategic management literature (Parnell *et al*., 2000; Nandakumar *et al*., 2010; Spencer *et al*., 2009).

3.4.2 Performance measure of achieving value for money in construction industry

The concept of value for money in construction is considered from the design and procurement point of view. This concept is beyond the delivery of a project to meet time, quality and cost. Although, according to Giritli and Oraz (2004) construction organisations are defined as project based organisations, but the fundamental goal of value for money is about delivering construction projects that meet organisation's business obligations and the requirements of the all the stakeholders. Therefore, identification of measures of organisational performance is a key issue in strategic management research both within and outside the construction management domain.

There has been an appreciable debate on the relevance of several methods used in conceptualising and measuring performance (Venkatraman & Ramanujam, 1986). This present study is conducted within the construction management domain where several approaches to measuring the performance of construction organisation have been applied (e.g. Kale & Arditi, 2002; 2003; Phua, 2006: Tan *et al*., 2012). McCabe (2001) highlighted that construction organisations' business performance should be assessed using indicators such as number of accidents, defects, time predictability, cost predictability, number of implemented suggestion from employees, number of completed project, received number of customer complains, number of non-conformities to ISO among other factors. Sommerville and Robertson (2000) in their scorecard approach to benchmark construction for total quality asserted that a scorecard for operational performance of construction organisations should include among other things return on capital, employee satisfaction, value of project won, profitability, and market value growth. All these are identified specific actions and good practice, which would help organisations achieve more customer satisfaction, timeliness in delivery, improved quality and value for money. From the foregoing, it is evident that measures of performance in construction have advanced beyond the traditional measures of time, cost and quality.

3.4.3 Approach to organisational performance measures

The essence of measuring organisation's performance is to provide viable and useful information to decision-makers within an organisation, to measure the outcome of strategies adopted to ensure they remain effective to sustain competitive advantage, and to align all levels of organisation so that substantial improvements can be achieved in organisational performance

(Seang, 2003; Robson, 2005). However, there are three common approaches to measurement of organisational performance as seen in the previous studies (Richard *et al*., 2009).

The first approach involves a single measure of performance being adopted on the basis that there is link between that measure and organisational performance (e.g. Hawawini *et al*., 2003; Spanos *et al*., 2004). The second approach applies diverse measures to produce analyses with dissimilar outcomes but identical predictive variables (e.g. Baum & Wally, 2003). In the third approach the researcher combines output variables, on the basis of correlation between them through convergent validity (e.g. Cho & Pucik, 2005; Goerzen & Beamish, 2003).

This thesis considers organisational performance measures from the third approach above, in which different measures of performance are combined. This includes the objective measures of performance—accounting measures, subjective and quasi subjective measures (Richard *et al*., 2009). It may be noted that each of these measures of performance possess their own merits and demerits.

3.4.3.1 Objective measures of performance

The most commonly used objective measures of performance are derived from the accounting financial data. It has been extensively validated in the strategic management literature by many researchers that both accounting data and economic returns are associated (e.g. Hawawini *et al*., 2003; Jacobson, 1987; Richard *et al*., 2009; Spanos *et al*., 2004),. For example, Jacobson (1987) discovered that although the strength of relationship as indicated by the R squared correlation of 0.2 between return on investment and performance was weak, yet it was good enough to differentiate organisational performance over time. However, Allen, Dawson, Wheatley and White (2008) contended that objective measures of performance limit the extent and breadth of what can be studied about organisations since organisations from a single industry like construction industry are required for reasonable comparison purpose with accounting data. Richard *et al.* (2009) also argued that accounting system are based on standards that are not always consistent with the underlying hypothetical reasons of organisational performance. Objective measures are lagging indicators as they stress historic operations more than future performance (Beatham, Anumba, Thorpe & Hedges, 2004; Richard *et al*., 2009).

Richard *et al.* (2009) concluded that in a more complex and unstable business environment characterised with unpredictable regulatory and institutional circumstances, objective measures become less reasonable as pointers of economic returns. For example, some studies found objective measures of performance to be biased in predicting organisational performance while subjective measures gave a more vigorous outcome (Jusoh & Parnell, 2008; Luu, Kim, Cao & Park, 2008). Nevertheless, this study adopted return on investment, which is the leading traditional objective measure of organisational performance (see Jacobson, 1987; Jiang, Zhihui & Chan, 2005; Palich, Cardinal & Miller, 2000; Richard *et al*., 2009). Also, Miller and Dess (1993) argued that return on investment has been discussed heavily by Porter as a measure of organisation's performance. This is because the funds invested by organisation in a business need to earn a return, which may be commensurate or exceed the target investment returns set by its management. The main measure of performance of return in an organisation business or investment is the Return on Capital Employed (ROCE), and this is adopted as the objective measure of performance in this study. This is because it essentially measures how well a business strategy turned assets to profit. This measure is significant for business due to the concept of opportunity cost which often plays a role in business organisations, especially in procuring construction projects. According to Riley (2012) ROCE allows organisation to evaluate the overall performance of its business; offers a target return for individual contract or project; and enables the organisation to benchmark its performance with competitors.

3.4.3.2 Subjective measures of performance

Subjective measures of performance permit a wider range of organisations to be compared against their rivals in a single research (Allen *et al*., 2008). These measures allow well-versed participants in a survey to be asked a series of questions about their organisation's performance, and thus enable the researcher to shape them to the context of interest (Richard *et al*., 2009). Subjective measures' validity is evident in research conducted within the construction management realm (see Manley, McFallan & Kajewski, 2009; Yang & Lu, 2013; Zhao, Shen & Zuo, 2009). Richard *et al*. (2009) classify subjective measures of performance into two categories: fully subjective measures and quasi-objective measures that duplicate the objective measures. .

Fully subjective measures are self-report measures that enable researchers to focus directly on the underlying performance construct by asking respondents to evaluate the fundamental

performance construct itself (Richard, *et al*., 2009). For example, Nandakumar, Ghobadian and O'Regan (2011) used the relative competitive performance construct, and requested respondents to compare the performance of their organisations with their main competitors on a 7-point Likert scale ranging from significant deterioration to significant improvement. A Likert item is one measurement scale; while a Likert scale is several items measuring the same construct (Holt, 2014). However, the flexibility of subjective measures can make them unreliable in the face of the highly unpredictable ambition of respondents, and as such suffer from psychological biases, above all in self-report measures from individuals who are part of the principal organisation (Richard, *et al.*, 2009). For instance, participants may be apt to consider themselves favourably, interpret external standard positively or depend on the underlying ambiguity to take praise for organisations favourable results (Campbell & Sedikides, 1999; Stajkovic & Sommer, 2000; Taylor & Brown, 1988). Meanwhile, the halo effects according to Rosenzweig (2007) can substantially affect subjective assessment of organisational performance.

The inherent cognitive biases and errors associated with subjective measures can be reduced through rigorous research design, selection of knowledgeable participants and by closing the collection gap to improve the quality of self-report (Mezias & Starbuck, 2003; Winter, 2003). In this research subjective measures of performance was used for three reasons: (1) financial performance data are regarded as classified data by many organisations and in most cases are not readily available; (2) as a result of differences in organisational objectives or goals and seeing that performance criteria vary from one organisation to another; financial data can be manipulated in order to give external stakeholders or outsiders a false the impression that an organisation is performing well (Kale & Arditi, 2003; Yee & Cheah, 2006).

The subjective measures adopted in this study are collectively called objective achievement. Nandakumar *et al.* (2010) describe objective achievement as the degree to which organisations were able to achieve their long and short term objectives and eliminate problems. This measure is adopted because the study involves strategy which is related to investments, which denotes a long-term commitment. It is about sustainable value creation, which occurs when organisations through their activities meet both their long and short-term goals (Hawawini *et al*., 2003; Spanos *et al*., 2003). The measures were adapted from Nandakumar *et al*. (2010) as an: improvement in long-term performance; predicting organisation's future growth,

evaluating alternatives based on relevant information; preventing problem areas; resolving problems and promoting management development.

3.4.3.3 Quasi-objective measures

Quasi-objective measures obtain specific objective information about performance using self-report methods, for example, by asking manager to estimate the market share of the organisation. This has been validated in the literature (see Kale & Arditi, 2003: Phua, 2006). In a related development, Dess and Robinson (1984) evaluated quasi-objective and fully subjective measures of growth in sales and return on asset in privately owned organisations. The result of that study indicated that quasi-objective and fully subjective measures of performance exhibit much divergence, and some disparity remains between the self-report measures. This has been argued to be in line with the measurement of performance construct (Richard, *et al.*, 2009).

However, Richard, *et al.* (2009) suggested the need for a researcher to select appropriate measures of performance that are closely associated to the research question under investigation and that maintain a comprehensive measure of performance that will take into cognisance disparity between measures. The quasi-objective measures used in this study are tagged competitor's effectiveness. Competitor's effectiveness was considered as a quasi-objective measure in this study and was measured using variables identified through the literature review for construction organisations as a means to compare business performance of competitors. Ferguson and Langford (2006) asserted that sustained competitive performance does not only come from short-term profit, it also requires the organisation to recognise, that its stakeholders have other values. Hence, the variables used include: return on investment (Capital Investment / Turnover); productivity is conventionally expressed in terms of value added by the process divided by the value of capital and labour used (Isik, 2009). For the purpose of this study productivity is defined as total turnover of the company's projects less all costs subcontracted or supplied by other parties (Warren, 2009). This definition of productivity was adopted to measure competitive effectiveness. Other variables include profitability; people management (employment growth); employee turnover; financial management (financial ratios); capability; competent workforce; growth in contract won/award (this is used to examine the level of satisfaction of the client with respect to finished products and performance in terms

of growth in contracts won/awards). The definition of the variables are provided in Appendix D.

Organisations are generally confronted with different degrees of market competition. The increasing rate of globalisation of the construction market has exposed many organisations in developing countries to intense competition from foreign construction organisations (Joubert, Cruywagen & Basson, 2005). Most of them now have to cope with a persistent decline in market share while others have been forced out of the market (Waweru, Hoqueznd & Uliana, 2004). In order to improve efficiencies within the organisation and the industry at large, competitor's effectiveness is attractive for construction organisations to undertake; therefore this study investigates how organisational performance is enhanced through competitor's effectiveness measures.

3.5 Resources and capability

The ability of an organisation to achieve sustainable superior performance is dependent on its accumulated resources and capabilities and on how effectively these unique resources and capabilities are deployed (Phua, 2006). Resources and capabilities are the measures of organisation's internal element of competitiveness. Resources are the input employed in process of production while capabilities are the abilities required for a group of resources to execute a specific activity or task (Grant, 1991). Organisational resources can be classified into physical, financial, human, organisational and technological resources (Chew *et al*., 2008). Resources alone are not sufficient to enable organisations to achieve sustainable superior performance, they have to be organised into capabilities. Hence, an analysis of these resources and capabilities will assist organisations to understand how to deploy their strategies to areas where they have resources and strong capabilities. These resources are discussed as follows:

Human resources

These concern the "soft" issues such as personnel management, industrial relations, incentive and compensation policies and restructuring of an organisation (Cheah & Garvin, 2004). The main aim of human resources is to provide an effective organisational system that will lead to recruiting, training, mobilizing and managing the human assets of an organization to systematically carry out business operations and new business enterprises (Cheah & Garvin, 2004). Seeing that the construction organisation is project-based that requires quite a number

of individuals to get work done. Hence, human resources should be considered as one component of an organisation that may give it a competitive edge over others in the industry. The implementation of a competitive strategy for human resources is important, as it gives an indication of how efficiently and effectively an organisation can manage the resources at its disposal.

Financial resources

This describes how an organisation's financial activities will be managed effectively to assist in the realisation of the overall business strategy of achieving the strategic mission and objective of the finance unit of the organisation. Cheah and Garvin (2004) argued that it is difficult for any business enterprise to operate without due attention to financial issues. The financial resources may be viewed under investment decision strategy and financial decision strategy. Investment decision, this is concerned with capital budgeting and allocation of financial resources, inter alia the selection of relevant tools such as a decision tree, net present value etc., used to enhance decision making (Cheah & Garvin, 2004). Financial decision involves the issues of capital structure of an organisation which relates to the use of equity or debt instruments to raise finances (Cheah & Garvin, 2004). Cheah and Garvin (2004) posited that within the construction industry purview, financial strategy also relates to the use of surety bond or insurance policies.

Technology resources

Technology resources is viewed as one of the most strategic postures an organisation can adopt particularly in dynamic business environments where companies operate (Zahara &Bogner, 2000), such as the construction industry. A company can use technology to create competitive advantage by introducing novel procedures or technical processes that can attract customers or change the pattern of competition within the industry (Miller, Radcliffe & Isokangas, 2009; Zahara, 1996). According to Cheah and Garvin (2004) there are three main issues surrounding technology resources; it may take the form of pioneer-follower strategy, where an organisation's technology strategy leads to pioneering of technological change or it may follow when its rival leads. The second issues raised by Cheah and Garvin (2004) relates to integration of new technology into the organisational system and process and lastly, the assessment of the level of importance of basic research so as to allocate resources efficiently and effectively.

Based on the foregoing, the characteristics of construction entail additional complexity for organisations if they are to implement technological innovations. However, in spite of these

inherent challenges to innovative ideas, there is need for construction organisations to adopt new technologies to improve their competitiveness (Miller *et al*., 2009).

3.6. The nexus between organisational characteristics, business environment, strategies, resources & capabilities and performance

Determination of the organisational structure and the strategy of an organisation are considered to be essential to the effort to achieve competitive advantage and continuous improvement in organisational performance (Pertusa-Ortega *et al*., 2010). Rosenzweig (2007) argued that there is no laid down plan which an organisation can follow to achieve high performance and stressed that organisational performance is essentially relative. Previous studies in management and organisational analysis have studied the trilogy of strategy, organisational structure and performance, and it is argued that organisational performance is contingent on corporate strategies and structure (Chandler, 1962; Rumelt, 1974). Also, the fundamental relationship between strategy-structure-performance has been explored by Porter, (1980) and Parnell (2013), to better understand the contingency approach and decisions to configure strategy and structure in allocating and controlling of resources.

However, Chandler (1962) and Rumelt (1974) contended that a study of the contingency factors- *strategy, structure and performance* in parts would only expose a fragment of the whole underlying relationship. Various researchers such as Pitts (1980) and (Hammond, 1990) believed that organisational structure forms the basis upon which management make their strategic decisions and thus insisted that structure established strategy and thereby stipulated the grounds for strategic decision making. Hill, Hitt, and Hoskisson (1992) summarised the importance of these relationships from a growth strategy viewpoint, noting that quite a large number of studies that focus on diversification had overlooked the significance of strategy-performance relationship implementation in their research. They concluded that by discounting the impacts of organisational characteristics in strategy research, the results of such studies are rendered incomplete or erroneous. The link between organisational strategy, characteristics and performance is a classical argument in strategic management literature, and the relationship between structure and strategy and their resultant impact on organisational performance, is the main focus in the work of Chandler (1962). The validity of this focus was corroborated by other researchers such as Hamilton and Shergill (1992); Suzuki (1980); and Rumelt (1974), who maintained that changes in organisational strategy will trigger vagaries within the

organisational structure so that strategy can appropriately be formulated and a better performance attained.

The assertion that the influence of strategy on performance is conducted through organisational characteristics has been criticised. For instance, the existing literature established that organisational structure has direct influence on an organisation's strategy, which in turn impacts on organisational performance because strategy directly impacts costs and revenues (Ebben & Johnson, 2005; Edelman *et al*., 2005; Eriksen, 2006; Pertusa-Ortega *et al*., 2010; Spanos & Lioukas, 2001). Furthermore, management style and decision-making style have been found to be related to organisational performance (Albaum *et al*., 1996; Russ *et al*., 1995). Also, in construction research, different management styles or leadership have been found to have impact on project or project organisational performance (Giritli & Oraz, 2004; Lansley, 1994; Limsila & Ogunlana, 2008; Naum, 2001; Nicholas, 1990). However, the contingency approach to structure-strategy-performance according to Pertusa-Ortega *et al*. (2010) may be suitable for the study of corporate strategy. Pertusa-Ortega *et al*. (2010) argued that organisations that develop business strategy need not to change their structure but make use of the organisation's internal coordination mechanisms as a valuable resource to achieve competitive advantage.

In the construction industry context, Lansley (1987) developed a framework which aligns with the contingency approach to organisational performance and concluded that the essence of this approach is that a failure of an organisation to estimate or match its structure with the environment may make it less competitive. He stressed that this does not mean that the contingency approach recognises the environment as a determinant of structure, but rather that certain environmental factors are essential. Shirazi *et al*. (1996) also examined the structures of organisation within the construction industry but with emphasis on how environmental characteristics affect the structure of project organisations. These studies affirmed that particular organisational characteristics are more appropriate under certain environmental conditions (e.g. Shiraz *et al*., 1996).

Resources-based view and dynamic capabilities researchers in construction (such as Chew *et al*., 2008; Phua, 2006) established that there is relationship between organisational resources and capabilities on the one hand and performance on the other. Phua (2006) contended that the ability of an organisation to achieve superior performance hinges on how well the

organisation is able to exploit its unique and valuable resources and capabilities. Competitive strategies allow an organisation to effectively deploy its resources and achieve sustainable superior performance (Barney, 2011; Junonnen, 1998). However, researchers asserted that different strategies are required under different environment conditions so that inappropriate strategies are not adopted where an organisation lacks resources and capabilities to perform (e.g. Cadle *et al*., 2010; Kabadayi *et al*., 2007; Prescott, 1986). The relationship between these constructs with performance will be explored in Chapter Four.

3.7 Theoretical perspective on organisational performance in strategic management

According to Anvuur (2008), "theory" is a scientific way of explaining empirical observations about a natural setting or scientific occurrence to provide a better understanding, which will be capable of predicting future behaviour of the phenomenon under considerations. The subject of organisational performance has been fundamental in strategy research for many decades and a wide variety of theories and approaches have been employed (Hoskisson Hitt, Wan & Yiu, 1999; Parnell, 2013). Many of these views directly or indirectly take into cognisance the question of why there is heterogeneity in organisations' performance and how organisations select their strategies, which in the end leads to the central question of how an organisation can achieve superior performance and attain a sustainable competitive advantage over its industry rivals (Bea &Haas, 2005; Porter, 1991). Hoskisson *et al*. (1999) contended that the development of theoretical approaches in the strategic management field of study has been dramatic over the years and whose focus is likened to a swinging pendulum; swinging between an organisation's internal strengths, weaknesses, external opportunities and threats.

Prominent among these views on strategic management were early works such as Strategy and Structure postulated by Chandler's (1962) and the Corporate Strategy developed by Ansoff's (1965) that focused on strategic fit between structure and strategy which is based on a contingency theory. More recently the resource-based view (RBV) of (Wernerfelt; 1984; Rumelt, 1984; Barney, 1986) focused attention on the internal strengths and weaknesses of organisations to explain performance and Dynamic capability (Teece *et al*., 1997) which was an evolutionary process of RBV as it stemmed from the underlying assumption on which RBV was founded (Barney, 2001) but also incorporated external factors such as market and institutional position. Porter (1980; 1981 & 1985) made one of the most important contributions to the development of strategic management field through the industrial

organization (IO) economics. The Industrial Organization (IO) theory is based on a structure-conduct-performance paradigm, and explains how the structure or forces within an industry or niche influences the strategy and decision making of an organisation. This approach holds the view that organisations' performance and the sustainability of their competitive advantage can be largely linked to the structure of their industry, in particular to five competitive forces that keep new entrants at a distance and secure improvements in profitability. These theories consider organisational performance from different angles, and explain distinct sources of sustainable competitive advantage of organisations (Roquebert, Phillips & Westfall, 1996). However, despite the contrasting views of the approaches, scholars argue that they are not mutually exclusive, but rather complement one another. Therefore, to develop a theoretical framework that will integrate an organisation's characteristics with the contingency factors (environmental issue) relating to performance, the study extended the industrial organisation theory, contingency theory, resource-based view and dynamic capability approach. This was necessary because the approaches are all important in understanding the perspectives of organisational performance and the links between the constructs in such a way as to lead to sustained competitive advantage.

3.7.1 Industrial organisation theory (IO)

This is a branch of neoclassical economics and management theory from the classical stream. IO theory is based on the belief that strong organisational performance is dependent on an organisation's market positioning within the industry (Cheah *et al*., 2007). IO is also refers to behavioural theory of organisation, which theorizes the framework of an industry to follow a Structure-Conduct-Performance (SCP) paradigm (McDermott, 2003). The theory stresses that the structure of the industry in which an organisation functions is the determinant of its performance as moderated by the organisation's strategy, and as such organisation profitability is conceived to be closely related with the industry structure (Parnell, 2013).

The main underlying principle of IO is that organisation must adapt to the influences in its industry to survive and achieve sustainable competitive advantage (Parnell, 2013). This supports the argument of Porter (1981), who posited that industry with positive or constructive structure provides the best opportunities for an organisation to multiply its profitability. As a result of criticism of the basic model with regard to uncertainty and instability of the industry structure and the influence of choice of strategy, five competitive force frameworks were

developed by Porter (1980) to assist organisations in making strategic choices. Porter (1981) contended that the Structure-Conduct-Performance framework recognises the industry structure and the exogenous environment, which includes opportunities and threats that are significant factors for formulation of strategy seeing that the external factors require to be matched by an organisation's internal strengths and competences.

The fundamental analytical aspect of IO can thus be employed to identify the competitive strategy, which organisations pursue in their respective industry (Porter, 1981, Teece *et al*., 1997). This strategic choice identified or used should be able to influence the industry dynamics and uncertainties to the advantage of the organisation, so that its profit margins can be raised. This means that organisations survival and superior performance are dependent on how the organisation adapts to the external forces within the industry which are often beyond its control using one of the generic strategies (Porter, 1980). IO theory assumes competitors in any industry have fairly similar strategies, resources and competencies; it only focuses on the forces within the industry. On this basis, the SCP paradigm emphasises performance heterogeneity between organisations largely through the industry structure, conduct (strategies) and a host of factors external to the organisation itself. It thus explains variations in the profitability level of the industry and also helps in determining the performance level that can be reasonably expected from an organisation that functions within a particular industry.

Summarily, according to Mellahi and Wilkinson (2004), the IO approach reflects three basic assumptions. The theory assumes that the exogenous business environment exerts pressures and constraints on organisations' competitive strategies that would lead to superior performance. This is because most organisations functioning in the same industry or within a certain niche of an industry are assumed to pursue similar strategies. Lastly, decision makers within an organisation are assumed to be rational in approach and determined to work in the organisation's best interest. Therefore, strategy that will produce performance excellence is contingent upon the business environment and how the organisation decision makers understand it.

However, despite the significant contributions of IO theory in addressing the shortcomings of models of perfect competition and in providing better understanding of the competitive behaviour in a certain niche or industry, the theory was not spared from criticism. Critics argued that the SCP paradigm focuses on the industry as unit of analysis rather than the organisation

and as such it fails to explain heterogeneity in the performance of organisations in the same niche. McGahan and Porter (1997) and Hawawini *et al*. (2003) empirically supported this argument through their studies, which found that organisation-effects on performance are significantly greater than industry-effects. Another criticism centred on managerial implication of the SCP perspective. For instance, Porter (1980) argued using his five competitive forces that organisations should only function in the industry where external opportunities abound with low threats. This indicates that the SCP framework is concerned about cross-sectional issues of what makes an industry look attractive, but not the longitudinal issues bearing on why some organisations are able to find themselves in favourable conditions. Furthermore, McCabe (2010) also argued that the model lacks dynamism in terms of changing magnitude or importance of the five forces, ignores the issue of complementarities (the sixth force) and overstress competition to the detriment of cooperation (Stratman, 2013).

3.7.2 The contingency theory

Contingency theory was first discussed in the strategic management literature in 1967 by Lawrence and Lorsch, notwithstanding that it was mentioned in the context of organisational structure. The theory is based on the structure-strategy-performance model linked to the work of institutional economists such as Mason (1939) and Bain (1956) which focused more on strategy than structure. Contingency theory presumed that different organisational conditions demand different organisational structures and that the most advantageous organisations are those that develop best and beneficial fit with their business environment (Parnell, 2013). The contingency approach requires an organisation to recognise frequently recurring situations and to examine how different organisational behaviour, structures and strategies perform in each situation. According to Zeithaml, Varadarajan and Zeithaml (1988), well-known contingency theories relating to organisational environments, characteristics and structures, competitive positioning and strategies, and behavioural processes have been proposed and tested by management researchers. Existing literature also indicates that application of contingency theory is not new in strategic management lexicon; Murray (1988) argued that it is implicit in the adaptive model introduced by Miles and Snow. Its manifestation is clearer in the contemporary contingency theoretical archetype of structure-strategy-performance introduced by institutional economist Porter (1981).

The structural contingency theory argues that organisations with the best fit perform than those that misfit. This also is the view of Donaldson (2001) hetero-performance theory, which

contends that organisations that fit to a higher level of contingency perform better than those fit to lower level. However, Porter (1980) posited that the effectiveness of generic strategies may be contingent on industry structure, while Donaldson (2001) contended that the strategic component of structural contingency theory is that organisational performance results from a fit between characteristics of structure of the organisation and the contingent factors relating to environmental issues. This is because there is no "one best way" for organisational structure to achieve performance excellence within an organisation. For example, Baum and Wally (2003) argued that mechanistic organisational structures yield better performance in stable (less dynamic) environmental condition whereas organic organisational structures are more effective in dynamic environments. Despite the focus of structural contingency approach being on the study of organisational structure, the theory can be used to empirically investigate organisational characteristics, such as style of management, decision-making style and organisational structure (e.g. Fielder, 1986; Frederickson 1984).

Therefore, the relevance of the contingency approach to Porter's generic strategies is not strange in strategic management literature. Researchers have employed contingency theory to examine the relationship between strategy, performance and competitive environment and this perspective indicates that optimal organisational performance is contingent on strategy and organisational characteristics (structure, culture, management style, problem-solving style) among other elements (Garengo & Bititci, 2007; Pertusa-Ortega *et al*., 2010). Literature also identifies contingency theory as one of the theoretical perspectives employed by researchers in analysing how measures of performance enable a strategic fit to the environment (Gimzauskiene & Kloviene, 2011).

In spite of the contribution of contingency approach to organisational practices in examining the level of interaction between the environments and the organisation, and its significance to environmental adaptations, the theory has been criticised. It has been argued that the contingency theory is unchanging and neglects organisational change and adaptation because the theory only deals with how a constant state of strategic fit between organisational structure and contingencies cause superior performance (Galunic & Eisenhardt, 1994). Structural contingency theory critics also contend that it is illogical for organisations to shift into fit with their contingencies, because while the organisation is shifting its structure to fit the contingencies, the contingencies themselves remain dynamic, so that the organisational structural movement does not produce fit (Donaldson, 2001). It was also stated that managers

of organisation may find it difficult to identify the fit states of the theory and so may not be able to change their organisation towards that fit. These shortcomings have been addressed by Donaldson (2001). For instance, Donaldson asserted that the concept of quasi-fit permits that managers only require to shift towards fit for misfit to be reduced. The main components of structural contingency theory include the environment, the organisational performance, and organisational structure and these core elements constitute some of the constructs considered by this study. Hence, the research employs structural contingency theory to investigate how organisational characteristics impact on organisational performance taking into cognisance the contingency factors (environmental aspects).

3.7.3 Resources Based View (RBV)

RBV has been acknowledged to be one of the most accepted and promising theories creating awareness on both strategic and organisational subjects (Powell, 2001; Truijens, 2003). The acceptance of the RBV as a concept dated back a couple of decades, when Penrose's research was made known, and it has since been well researched. Precisely, the RBV standpoint suggests that organisational performance is eventually a return to distinctive resources and competencies (Barney, 1986, 1991; 2001; Rumelt, 1991; Wernerfelt, 1984). The theory's view is contrary to the IO perspective; it argues that performance of an organisation is a function of the organisation's ability to harness and make use of its unique resources (Barney, 2001). The source of sustainable competitive advantage lies in the internal capacity of an organisation to effectively exploit and restore distinctive organisational resources, rather than focusing on positioning the organisation in the right industry niche (Li & Ling, 2012). RBV conceptualises the structure of an organisation as both the resource and capability. This is also the view of a few other authors, who contend that effective strategies must be based on the organisation's skills, resources and distinctive capabilities to achieve a sustainable competitive advantage (e.g. Parnell, 2013; Prahalad & Hamel, 1990; Snow & Hrebiniak, 1980). This permits an organisation to differentiate itself from competitors and develop competitive advantage. Resource-based theory lays emphasis mainly on individual organisations instead of the competitive environment. The RBV has developed the concept that sustainable competitive advantage of an organisation is brought about by organisational and managerial capabilities (Li & Ling, 2012). It is believed that organisations resources (tangible and intangible) are related to its capabilities, which in turn, create values and improvement in the level of profit achieved (Parnell, 2013).

Hence, Barney (1991) offered a comprehensive framework with a conviction contrary to Porter's. Barney (1991) argued that it is an organisation's resources that determine its level of sustainability of competitive advantage and performance with two basic underlying assumptions of heterogeneity and immobility of resources. Barney (1991) assumed that organisations' resources are heterogeneous in nature and as such different organisations are endowed with different resources. He explained immobility of resources as a situation that permits continuous existence of differences in organisation resources, which allows for competitive advantage. Despite the significance of the underlying assumption, Barney's (1991, 2001) main suggestion was that for an organisation to attain a state of Sustained Competitive Advantage (SCA), it needs to develop and control valuable; rare; inimitable; and non-substitutable (VRIN) resources and capabilities; and also be able to absorb and utilise those resources and capabilities. Since the acceptance of RBV, the concept has attracted other schools of thought such as capabilities and competence-based theory, and dynamic capabilities theory (Prahalad & Hmael, 1990; Teece *et al.*, 1997) to broaden and refine the perspective of organisation.

In spite of the well-designed effortlessness, wide acceptance and immediate face validity that make the RBV's main idea appealing, easily understood and easily taught as articulated by Kraaijenbrink, Spender and Groen (2010), it has faced considerable criticism. Penrose (1995) insisted that organisations resources are sometimes valuable separately. Porter (1991, 1996) argued that RBV failed to deal with the subject of expounding the procedures by which competitive advantage was created appropriately, and instead focused on analysis of resources and capabilities rather than on the activities that he considered to be more appropriate. Priem and Butler (2001a; 2001b) also contended that RBV viewed an organisation's resources in terms of its performance and hence, does not appear to be empirically testable or meet the empirical content principle required of a theoretical system. Priem and Butler's criticisms of RBV were categorised into four broad group by Barney (2001), who argued that: (1) the resource-based theory develop by Barney is tautological; (2) his argument fails to acknowledge that many different resource configurations could generate the same value for firms and, thus, would not be sources of competitive advantage; (3) the role of product markets is underdeveloped in the 1991 paper; and (4) the theory developed in the article has limited prescriptive implications.

Kraaijenbrink *et al.* (2010) in their review and assessment of critiques of RBV, categorised them into eight points namely that RBV: (i) does not have implications for managers; (ii) implies infinite regress; (iii) application is too limited; (iv) SCA is not achievable; (v) cannot be considered as a theory of the firm; (vi) VRIN/O is neither necessary nor sufficient for SCA; (vii) Value of a resource is too indeterminate to provide for useful theory; and (viii) definition of the resource is unworkable. Kraaijenbrink *et al.* (2010) argued that the first five critiques are irrelevant or only apply when the RBV is taken to its logical or impractical extreme; a better demarcation of the RBV and its variables can suppress those critiques as they do not necessarily constitute a threat to the position of RBV. Nonetheless, Kraaijenbrink *et al.* (2010) agreed that the last three critiques pose a serious threat to the status of RBV if its full potentials are to be realised in explaining SCA particularly beyond predictable stable organisational environments and concluded that the threats to RBV have to be put under control.

3.7.4. Dynamic capabilities (DC)

This approach is a recent extension of RBV. Despite the logical contention that the DC approach cannot yet assert to be a comprehensive theory on the same level with the established RBV, it nonetheless deals with major inadequacies of the traditional approaches (Knecht, 2014), and its contentions are of high significance for this study. Dynamic capabilities are a reflection of an organisation's ability to attain new and innovative forms of competitive advantage through reconfiguration of resources. Teece *et al*. (1997) defined dynamic capabilities as the competency of an organisation to build, combine or integrate, and re-arrange both internal and external abilities to deal with the quick changing organisational environment. The static nature of Porter's five competitive forces framework and Barney's RBV comprehensive models as claimed by Priem and Butler (2001a) allows the concept of dynamic capabilities to extend the frontier of knowledge on strategic management science by focusing on SCA in a continuous and active manner. Capabilities are considered to be distinct from individual expertise or proficiency. Capabilities are the foundation on which organisations sustained competitive advantage is built (Grant, 1991; Teece *et al*., 1997).

Barreto (2010) argued that Teece *et al*.'s (1997) approach is an extension to RBV, proposed to explain the situations under which organisations attain a sustained competitive advantage based on their package of resources and capabilities. The concept of dynamic capabilities was built around several main factors that draw attention to its key theoretical foundations such as its nature, role, context, creation and development, outcome, and heterogeneity (Teece *et al*.,

1997). The concept was categorised into six main elements as identified by Barreto (2010) from Teece *et al.* (1997) research paper these include; nature, role, context, creation and development, and heterogeneity. Teece *et al*. (1997) argued that the dynamic capabilities concept explicitly emphasised sustained competitive advantage as a direct outcome of dynamic capabilities. Again, this was consistent with the earlier intention of Teece *et al*. (1997) to complement RBV which has been reported to be static and inadequate in explaining an organisation's competitive advantage in the hyper-competitive environment to certain context while still retaining its objective of explaining why some firms and not others achieve and sustain a competitive advantage.

Consequent upon the competitive nature of the business environment where organisations thrive, dynamic capability is proposed to help organisations harness, coordinate and redeploy internal and external competences to respond to and meet the aspirations of organisations in a quick changing business environment. Helfat and Peteraf (2009), Teece, (2009) and Zott (2003) contended that dynamic capabilities have direct linkage to organisational performance based on a process that is capable of altering the current position of an organisation by changing a company's bundle of resources, usual operational activities and competencies.

This view has also been criticised by scholars such as Green, Larsen and Kao (2008) who contended that the terminologies associated with the theory are most often incomprehensible or unclear. They claimed that the definitions of the terminology are frequently illusory, while vagueness of the terminology is regarded as a serious issue in dynamic capabilities literature. Priem and Butler (2001) viewed dynamic capabilities as an extension of RBV and as such criticised it for being tautological. Zahra, Sapienza and Davidsson (2006) asserted that dynamic capabilities studies are peppered with incongruities, illusive definitions and absolute paradox and as a result lack differentiation between the dynamic natures of the environment from the dynamic nature of organisations capabilities. Jarzobkowski's (2005) criticism revolved around the retrospective nature of how dynamic capabilities identify capability on the grounds of observed pattern of actions or behaviour. However, Delbridge, Gratton and Johnson (2006) argued that the inconsistencies in definitions or meanings of terminology related to dynamic capabilities arose out of its application in different contexts by different researchers to investigate different occurrences. This argument was upheld by Green *et al*. (2008) who argued that the critics of dynamic capabilities should recognise that the validity of their criticism is dependent upon the adopted explanation of dynamic capabilities.

3.7.5 Industrial Organisation Theory and Resource-Based View: Differences and complementarities

Quite a plethora of RBV researchers (e.g. Barney, 1991; Conner, 1991; Foss & Knudsen, 2003; Peteraf, 1993; Peteraf & Barney, 2003; Wernerfelt, 1984) acknowledged that the IO and RBV approaches are complementary in explaining the sources of an organisation's sustained competitive advantage. Bridoux (1997) and Foss (1996) categorise complementarities between the IO and RBV into thematic and conceptual complementarities. Thematic complementarities as summarised by Foss (1996), indicates that RBV tilts towards a longer run which permits analysis of competitor competitive advantage through its distinctive combination of rare resources, which are inimitable to entrants and valuable for the specific purpose of the organisation. Whereas IO enhances the understanding of an organisation's external environment and keeps new entrants at bay in a short run. The conceptual complementarities revolve around the two similarities identified by Spanos and Lioukas (2001): (i) the IO perspective as seen in Porter's (1980) five competitive force framework and RBV approach come to an understanding that consistently above-normal returns are possible, and (ii) both IO and RBV views search for the explanation of organisation's performance or sustained competitive advantage. Also, both IO and RBV approaches believe that decision makers of organisations are rational and that an organisation's fundamental objective is to increase its profitability (Bridoux, 1997).

Despite the complements the two perspectives offer to each other, IO and RBV hold contrary views which has to be recognised to avoid erroneous extensiveness (Bridoux, 1997), some of the differences have been identified in literature. The industrial organisation view argues that the external structure of the industry as well as the strategies of the competitors are the most important determining factors of organisations performance, while the resource-based view argues that the organisation's specific internal environment or resources explains competitive advantage (Grant, 2005; Hawawini *et al*., 2003). Foss (1996) argued that with respect to formulation of competitive strategy, environment and resources; IO that is based on the SCP paradigm, views the growth of resources as part of the implementation processes of the competitive strategy dictated by the contingency factors in the external environment. In contrast, the RBV put forward that organisation resources presents the basis for strategy, which enables an organisation to utilise its resources to its advantage within the competitive environment.

The RBV and IO approaches differ basically with respect to the nature of the rents (profit or performance) an organisation can achieve. The RBV is an efficiency-based explanation of performance differences in that it explains that an organisation's excellent resources are more effective because they enable an organisation to create more economically and/or better satisfy customer needs (Peteraf & Barney, 2003). Contrarily, the IO perspective underscores the monopoly-type rents by intentionally limiting production below competitive levels as the sources of performance differentials (Conner, 1991; Weigl, 2008).

However, the essence of combining these theories the IO, contingency theory, the RBV and dynamic capabilities theories is to provide a comprehensive understanding of how organisations, competitive environment, resources and competition interact to produce superior performance. Accordingly, the main constructs in this study to be investigated follow Structure (organisational characteristics) – Resources (resources and capabilities) - Conduct (competitive strategy)-Performance (organisational performance) and business environment (environmental dimensions).

3.8. Summary

This chapter presented an extensive review of the literature on the construction organisation business environment, strategies, organisational characteristics resources and capabilities as well as performance. The construction business environments were classified into endogenous and exogenous environment to ensure proper analysis. The chapter also reviewed the literature on organisational characteristic with emphasis on organisational structure, decision-making styles and management styles. Furthermore, the existing literature on resources and capabilities as well as organisational performance was reviewed with attention to different measures that are capable of reflecting the performance of organisations; this was also discussed in the context of the construction industry. It provided explanations on the linkages between the constructs discussed within the chapter to clarify the need for the study. This chapter also provided the explanation of the theoretical underpinnings of this study for proposed conceptual model to be presented in Chapter 4 of this research as well as research hypotheses. Exploration of the theories indicated how the variables or constructs in the models are related to one another to give better understanding of the underlying principles conceptualised in the model.

CHAPTER 4
CONCEPTUAL MODEL AND RESEARCH HYPOTHESES

4.1 Introduction

This chapter draws on the literature reviewed presented in Chapters 2 and 3 as well as the analysed theoretical perspectives and identifies the adopted view used in this study. These theories form the basis for the development of the conceptual framework presented in the latter part of this study. The conceptual framework of the study helps the researcher to make common-sense of the association among constructs that have been identified as important to the need for the investigation. This chapter therefore serves as a general framework for the data collection, analyses and discussion of findings.

4.2 Conceptual model of the study

The objective of this section is to briefly describe the concepts employed in this study and to make known the position of the researcher with respect to the current discussion in the strategic management literature in general and construction. Therefore, a conceptual model is developed to give attention to the issues relating to the competitive strategy, resources and capabilities, organisational characteristics, environmental conditions and performance.

The conceptual model of the study shown in Figure 4.1 presents the position of the researcher on the research problem being investigated. It shows the links between different constructs under consideration in this study and gives direction to the research. The constructs in the model have been extensively discussed in part in the preceding Chapter 3 and are here brought together to provide a better understanding of the conceptual model of the research shown in Figure 4.1. From the model head arrow illustrates direct relationship while broken arrow depicts indirect relationship. These interaction as discussed in the next section.

The conceptual model developed for the study shows that organisational characteristics, resources and capabilities, competitive strategies, organisational performance and business environment have been shown to interact in the development of the conceptual model. The proposed model combines the organisation's resources, characteristics and competitive business environment as sources of sustained superior organisational performance and a strong

force for formulation of strategy. The model shows that organisational characteristics is directly influenced by business environment and resources and capability, while business environment, organisational characteristics and resources and capabilities jointly impact on the competitive strategy used by organisations. The model also indicates that organisational characteristics, resources and capabilities exhibit direct influence on organisational performance, while business environment is indirectly related to organisational performance.

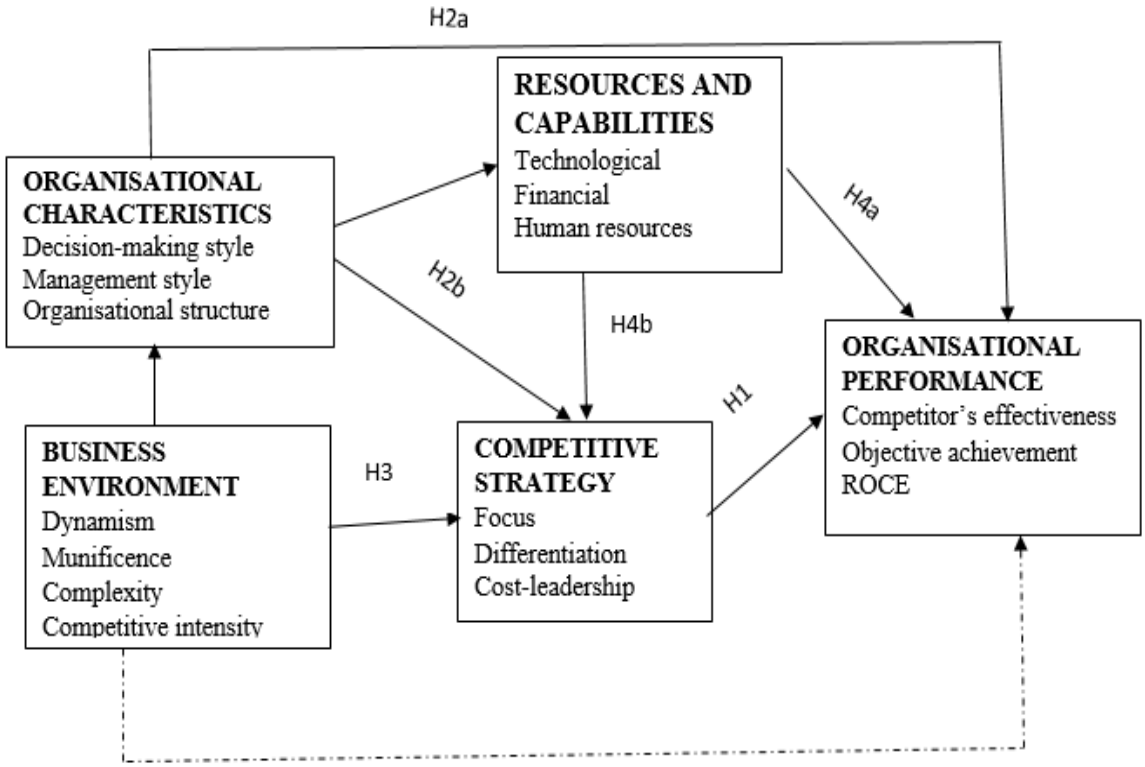

Figure 4. 1: Conceptual model

4.3 Hypotheses development

Based on extensive review of theoretical underpinnings to this study in Chapter 3, the main propositions drawn from the above-mentioned theories and the explanations of the constructs can be better explained using examinable hypotheses. Therefore, the measures for the constructs used in forming the model and included in the hypotheses are discussed below.

4.3.1 Organisational performance

Organisational performance is one of the most researched and important constructs in strategic management study and undoubtedly the most significant predicator of the organisational

success (Gavrea, Stegerean & Ilieş, 2012). Organisational performance is a relative term and as such, performance remains an indefinable term in strategic management literature. For instance, Yamin, Gunaskeran and Mavondo (1999) asserted that dealing with performance in research contexts is possibly the most difficult issue academics are confronted with in research today. This is because; with the increasing number of studies in the area there is little or no agreement on the definition of the term or terminology (Ventrakaman & Ramanujam, 1986). However, Richard *et al*. (2009) argued that organisational performance could be viewed as a multidimensional variable linked largely to time, stakeholders and the heterogeneous nature of market circumstances. Yamin *et al*. (1999) posited that the slightest understanding of organisational performance revolves around the use of simple accounting figures as an indicator that reflects the objective fulfilment of an organisation. Different studies suggest different perspectives on measures of performance and different purposes require different measures (Behn, 2003). Richard *et al.* (2009) asserted that the relationship between measures and performance is influenced by the measures an organisation adopts within its internal system and how these are embedded into management practices within the organisation, for instance, the organisation's specific key performance indicators (KPIs). This is consistent with Levenson, Van der Stede and Cohen (2006) who contended that the internal performance measurement systems adopted by organisations is capable of influencing performance both at the organisational and individual levels. Performance of organisations is thus determined by the end result of the strategies used by the organisations which is justified in terms of their contributions in improving organisation's performance (Hunger & Wheelen, 2011). Therefore, how organisations measure performance and what measures of performance are used to depict organisational success in different organisation constitute an important gap in research in South Africa context. In order to illustrate the relationship between strategies, measures of performance and overall organisational performance as conceptualised in this study, the research questions that led to the research hypothesis to be tested as well as the hypothesised statement are stated as follow:

Key research question: What are the prevalent competitive strategies adopted by construction organisations operating in the South African construction industry; and what specific strategic attributes of their competitive strategies are strongly related to the performance of these organizations?

Hypothesis 1: There is a significant positive relationship between competitive strategies (cost leadership, differentiation, and focus strategy) and organisational performance.

4.3.2 Relationship between competitive strategy and organisational performance

An investigation into the type of competitive strategies used by large construction organisations functioning in the South African construction market is a much needed research for obvious reasons (such as sources of performance differentials). The emerging economies are characterised by unstable business environment, low-income and significant growth brought by economic liberalisation as the primary driver for the growth (Hoskisson, Eden, Lau & Wright, 2000). As a result of the quickly changing business environment and political instability in emerging economies, Hokisson *et al*. (2000) asserted that both private and public owned organisations have had to formulate strategies to cope with the broad changes. However, South African construction industry is believed to be similar in characteristic features to that of the UK in terms of procurement practices, structure and regulations (Bowen *et al*., 2007). Thus, Mohammed (1994) and Price and Newson (2003) in research conducted in the UK, asserted that the three Porter's generic competitive strategy are used by large construction organisations in the UK to achieve superior performance. Many other studies both in the emerging and developed countries such as Kale and Arditi (2003) in US context, Tan *et al*. (2012) in Hong Kong and Ling and Li (2012) in Chinese construction industry context have also identified the strategies used by construction organisations in their respective industry. However, it is yet unknown what business strategies are being used by large construction organisations based in South Africa to achieve performance excellence or that ensure their continued existence in the industry market. Empirical studies directly linking to competitive strategy as source of sustained competitive advantage are quite rare, especially in the South African construction industry.

4.3.3 Relationship between organisational characteristics, strategy and performance

Effective consideration of organisational characteristics and competitive strategies are essential so as to achieve competitive advantage and improved organisational performance (Mansoor *et al*., 2012; Pertusa-Ortega *et al*., 2010). This study conceptualised organisational characteristics (organisational structure, management styles and decision-making styles) as the structure or design of the organisation based on the contingency approach. The existing literature has revealed the performance effects of different organisational structures (organic and

mechanistic) in its relationship with strategy based on contingency theory, and the theory suggests that efficient structure of an organisation is dependent on the strategy used by the organisations amidst other factors Pertusa-Ortega *et al*. (2010). Pertusa-Ortega *et al*.'s (2010) study indicated that organisational structure's relationship with performance is indirect; this may either be moderated or mediated by strategy. Garengo and Bititci (2007) also, investigated the factors influencing performance measurement finding among Scottish SMEs that performance was contingent on certain factors such as organisational structure and management style. Also, the relationship between decision-making style and performance has been established in literature (Albaum *et al*., 1995; Russ *et al*., 1996). Their studies examined the influence of decision making and management styles on the performance of managers, and found that both management style and decision-making style are related to performance. However, there is need to understand the role of the organisation's structure in shaping organisational performance. The gap in the understanding of the linkages in literature hitherto, is that there are no empirical research that examines holistically how these contingent factors influence performance and competitive strategies of organisations, the few studies that identify some of these factors in the extant literature investigated them individually or theoretically (e.g. Lansley, 1987). Therefore, the key research question and following hypotheses were formulated:

Key research question: How do organisational characteristics influence performance?

Hypothesis 2a: Organisational characteristics have a direct and significant relationship with organisational performance.

Hypothesis 2b: Organisational characteristics moderate the strength of relationship between competitive strategies and organisational performance.

4.3.4 Business environment interaction with organisational characteristics, strategy and performance

An organisation's business environment is rapidly changing and transforming and this may have telling effects on organisational characteristics, competitive strategies and performance. Porter (1980) asserted that the essence of developing competitive strategy by an organisation is to relate itself to its business environment. Hence, competitive strategies that businesses use are influenced by the business environment in which they function (Amoako-Gyampah, 2003). The causes of organisational performance heterogeneity can be found in the organisation's ability to react to changes in the environment, which is every so often filled with turbulence

and unpredictability (Braglia & Petroni, 2000). Most organisational strategists both outside and within the construction management field accept that business environments have influence on organisational strategy and performance (Betts & Ofori, 1992; Jones, 2013; Lansley, 1987; Parnell, 2013; Porter, 1985). Parnell (2013) argued that for an organisation to achieve a superior performance, a beneficial strategic fit with the environment is a requirement. However, previous studies show incongruences on the environmental effects on strategy and performance. Nandakumar *et al*. (2010) reported that some studies indicate that a close relationship exists between strategy and environment and that the performance of an organisation hinges on the interplay of strategy and environment. Pelham (1999) contended that success of strategy at the business level is subject to the attributes of the organisation's industrial environment. Some researchers on the other hand contended that the environment only moderates the strength of relationships between strategy and performance but not the form of these relationships (Goll & Rasheed, 1997; Prescott, 1986). Literature also reveals the relationship between Porter's generic strategies, performance and environment, and how environmental latent variables influence organisations' performance, yet the results are contradictory (Nandakumar *et al*., 2010). The above arguments have drawn attention within the context of developed economies it remains unknown the degree to which the assertion might true in the construction industry. Therefore, it is imperative to have a better understanding of the nature and extent to which the construction business environment impacts on organisational performance in the South Africa context. Thus, the study states the specific research question and proposes the following hypothesis:

Key research question: What is the nature of the business environment in the South African construction industry, and what is the moderating effect of this environment on the strength of the relationship between strategy and organisational performance?

Hypothesis 3: Environmental dimensions moderate the relationship between competitive strategies and organisational performance.

4.3.5 Organisational capabilities/resources and competitive strategies, and performance

Research on dynamic capabilities and resources of organisation has witnessed a series of debate with respect to gaining competitive advantage (e.g. Barney, 1991, 2001; Priem & Butler, 2001a & b). Some researchers acknowledged that organisations unique resources and capabilities which are valuable, imitable and that cannot be substituted, determines their ability to achieve

sustained competitive advantage (e.g. Barney, 1991; 2001; Prahalad & Hamel, 1990). A few other studies also reported that capabilities and resources have positive impact on organisational performance in a variety of ways; such as matching of the resource base with fluctuating environments, creating changes in market; and improving internal organisational performance (Eisenhardt & Martin, 2000; Gudergan *et al*., 2012; Makadok, 2001; Teece *et al*., 1997). Furthermore, Chmielewski and Paladino (2007) and Hitt, Bierman, Shimizu and Kochhar (2001) contend that the dynamic capabilities of an organisation help in improving the success, competence and rate at which organisations respond to environmental turbulence which in the end build up superior organisational performance. Indeed, Zott (2003) contended that dynamic capabilities support the reconfiguration and changing of an organisation's bundle of resources, routines of operations, and competencies which indirectly affect organisational performance. Despite Hoopes, Madsen, and Walker (2003) argument that resources and capabilities are not capable of explaining continued performance heterogeneity, some studies affirmed their significance as source of organisational performance (e.g. Phua, 2006). Only a few of these studies explored whether the capabilities/resources of an organisation are directly related to performance or whether competitive strategies have a moderating effect on performance (e.g. Wilden, Gudergan Nielsen & Lings, 2013; Ouakouak, Ouedraogo & Mbengue, 2014). However, Chew *et al.* (2008) found that an alignment of competitive strategy and core capability is an important requirement to achieving superior organisational performance, but their findings were in the contexts of construction SMEs. Resources in themselves do not guarantee competitive advantage except when they are structured into capabilities to achieve organisation's performance objective through the performance measures. Against this backdrop, the study hypothesised from the research question that:

Key research question: How do organisations' resources and capabilities impact on competitive strategy in enhancing organisational performance?

Hypothesis 4a: There is a significant positive relationship between organisational capabilities/resources and performance.

Hypothesis 4b: There is a significant relationship between organisational capabilities/resources and organisational performance which is mediated by competitive strategies.

4.3.6. The nexus between organisational characteristics, strategies, environment, resources and performance

A number of studies have examined the relationship between organisational characteristics (structure) and organisational performance as well as linkages between strategy-structure-performance with emphasis on its alignment with environmental dimensions (Dess & Beard, 1984; Kabadayi *et al*., 2007; Nandakumar *et al*., 2011; Pertusa-Orgtega *et al*., 2010; Ward & Duray, 2000). However, little or no empirical research has explored the influence of organisational characteristics (decision-making style, management style, structure) on the strength of relationship between strategy, organisational performance and environmental factors that are linked with this fit in a single study. The achievement of a suitable strategic fit between organisation's business environment, competitive strategies, structure and processes has significant positive effect on performance of organisation (Hunger & Wheelen, 2011). Hence, the development of competitive strategies becomes ever more important as the business environment appears more dynamic and complex. For example, studies reveal that organisations that adjust their business strategies and tilt the structure of their organisations to cope with the broad scope and instability of the environment perform better than their rivals that do not change (Nickerson & Silverman, 2003; Pertusa-Ortega *et al*., 2010). This is in line with the contingency approach, which asserts that organisational settings present limits within which organisations must obtain strategic fit by altering their structure (Wilden *et al*. 2013). The balancing of endogenous organisational characteristics (such as management style, decision-making style, and organisational structure) against exogenous context constructs (environmental dimensions such as dynamism, complexity, competitiveness and munificence) assists organisations in achieving superior performance (Wilden *et al.,* 2013). Furthermore, contingency theory proposes that organisational performance is dependent on the alignment of the organisation with the environment (exogenous strategic fit), and the coherence of organisational components with one another (endogenous strategic fit), because no single strategy is viewed as ideal for every businesses, irrespective of the infrastructure and context of the environment (Chung, Wang & Huang, 2012; Wilden *et al*., 2013). This constitute a gap in the context of this research, because it is not known the degree to which large construction organisations achieve superior performance by obtain strategic fit with the business environment in relation to their strategies and characteristics.. Hence, the following hypothesis was formulated from the research question that states:

Key research question: How can the influences of organisational characteristics, competitive strategies and environmental dimensions on organisational performance be modelled to enhance performance?

Hypothesis 5: Organisations that place emphasis on obtaining strategic fit with the business environment, and which adopt one of the generic strategies with appropriate organisational characteristics and resources/capability, will outperform competitors that do not.

4.4 Summary

This chapter presented the conceptual model for the research as well as research hypotheses. Exploration of the theories in Chpater 3 indicated how the variables or constructs in the models are related to one another to give better understanding of the underlying principles conceptualised in the model. The constructs are helpful in examining and assessing the business strategies used by large organisations in South Africa context, and these have been discussed within this thesis. At this stage of the research the conceptual model was at formative stage and yet to be validated. Hence, efforts were taken to ensure all the constructs were given adequate attention to reflect the variables that may influence organisational performance. The linkages between the organisational characteristics, strategy and performance trilogy was reviewed. The gaps in knowledge were identified and discussed as the basis for the research questions and areas for future studies. Considering the complexity of the study involving strategy with the elusiveness of what constitute performance, the next Chapter (Chapter 5) presents the research methods and methodology that was adopted to identify the unit of analysis and provide explanation on how industry practitioners were involved to give a better understanding of the business strategies among large construction organisations. The research method chosen also assists in setting up actions on the hypotheses put forward in this chapter and how to obtain further information and specific details about strategic practices adopted by different organisations to achieve superior performance. The remaining Chapters (Chapters 6, 7 and 8) provide the analysis of data and discussion of results before drawing conclusions and making recommendations to assist the industry.

CHAPTER 5
RESEARCH METHODOLOGY

5.1 Introduction

The evaluation of impacts of organisation characteristics and strategies on organisational performance is complex. Therefore it demands a detailed methodological approach to collect data and then analyse it to obtain results that will explain the nature of the impacts. The main focus of this chapter is to provide justification for the research methodology and techniques proposed by this research in achieving the aim of the study. Firstly, the chapter outlines the philosophical underpinning of the research approach considered and also examines the research paradigms that are dominant within the construction management research purview. Subsequently, the rationale for the research design, criteria for evaluating the research design is discussed. The details of the method of data collection, unit of the analysis, sample selection including methods of data analysis are also discussed. Finally the ethical considerations are examined.

5.2. Research philosophy

In order to have a better understanding of occurrences that influence an organisation's strategic direction and performance, it is essential to consider issues that trench on research philosophy and research paradigms so that the subject area can be properly situated. Filstead (1979) viewed paradigm as a "set of interrelated assumptions about the social world which provides a philosophical and conceptual framework for the organised study of that world". Since these assumptions are integrated within the philosophy of science that describes the beliefs or assumptions regarding the nature of reality and truth, the acquisition of knowledge, and the relationship between the research participant and the researcher, these parameters are capable of influencing the manner in which the research is conducted (Ponterotto, 2005). The assumption (i.e. worldview will typically influence how an individual approaches a research problem and hence, their methodological design. Therefore, Greener (2011) opined that knowledge of philosophy of social research increases the probability of a researcher making satisfactory methods choices. This underlines the assertion of Denzin and Lincoln (2000) that choice of paradigm made by researcher will provide the philosophical guidance and assumptions upon which research is based including the selection of tools, instruments, unit of analysis, and methods adopted in the research. It is on this note that the study, therefore,

considers it imperative to interrogate the philosophical underpinning of the research paradigm employed in the study so that incongruence in the research approaches and nature are eliminated and as such the research biases are trimmed down, understood and exposed.

5.3 Research paradigms

Ponterotto (2005) argued that the research paradigm sets the framework for a researcher's to conceptualise and classify his study. However, Creswell (2009) considered research paradigms as worldviews which give shape to the discipline area of the researcher and the past research experiences. There are many research paradigms adopted to serve as a guide when conducting research both within and outside the construction management realm. Love, Holt and Li (2002), in a study investigating triangulation in construction management research, identified two paradigms that appear to be dominant. These are the interpretivist or phenomenological approach, and the positivist approach which also relies on interpretive methods or data collection (Holt & Goulding, 2014). In another construction management study reported by Dainty (2008), it was found that out of the 107 research papers published in volume 24 of the journal *Construction Management and Economics*, 9 adopted the interpretivist approach, 76 used the positivist approach, 12 employed the pragmatic approach, while 10 were either review or other papers. Dainty (2008) thus concludes that though research paradigms are competing for methodological pre-eminence, the positivist approach appears to be dominant.

Dainty (2008) however, highlighted that none of the methodologies on its own can give the entire range of what Construction Management research requires; therefore multi-methodology research design should be adopted to provide better understanding of the complexity that characterised the construction industry. This supports the earlier position of Love, Holt and Li (2002), who argued that construction management research is better located at the meeting point of natural and social sciences; thus a combination of both qualitative and quantitative methodologies is encouraged. This research entails an examination of how organisation's characteristics, strategies and the business environments influence performance of organisation with the aim of enhancing organisations performance or competitive advantage. It is a research that is conducted within the construction management domain; therefore the use of mixed methods approach is relevant. In fact, Amaratunga, Baldry, Sarshar and Newton (2002) suggested that mixed methods approach is an appropriate and desirable design in built environment research which offers complementarity advantage by focusing on the strengths of

both methodologies. Next, this research provides the summary of existing paradigmatic outlines and justifies the paradigm considered most suitable and interpretable for this study.

Table 5.1 provides a comparison of the four research paradigms with respect to their philosophical underpinnings.

Table 5. 1: Comparison of four research paradigms in management research

	Positivism	**Realism**	**Interpretivism**	**Pragmatism**
Ontology: *the researcher's view of the nature of reality or being*	external, objective and independent of social actors	Is objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)	Socially constructed, subjective, may change, multiple	External, multiple, view chosen to best enable answering of research question
Epistemology: *the researcher's view regarding what constitutes acceptable knowledge*	Only observable phenomena can provide credible data, facts. Focus on causality and law like generalisations, reducing phenomena to simplest elements	Observable phenomena provide credible data, facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts	Subjective meanings and social phenomena. Focus upon the details of situation, a reality behind these details, subjective meanings motivating actions	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspective to help interpret the data
Axiology: *the researcher's view of the roles of values in research*	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance	Research is value laden; the researcher is biased by world views, cultural experiences and upbringing. These will impact on the research	Research is value bound, the researcher is part of what is being researched, cannot be separated and so will be subjective	Values play a large role in interpreting results, the researcher adopting both objective and subjective points of view
Data collection techniques most often used	Highly structured, large samples, measurement, quantitative, but can use qualitative	Method chosen must fit the subject matter, quantitative or qualitative	Small samples, in-depth investigations, qualitative	Mixed or multiple method designs, quantitative and qualitative

Source: Saunders *et al*. (2009: 119)

Based on the philosophical and paradigmatic approach given in Table 5.1, only pragmatic paradigm is explained below because this research is based on pragmatic worldview, being s considered most suitable for the study based on the advantages it offers by combining qualitative and quantitative research methodologies in a single research.

5.3.1 Pragmatism

Pragmatism is a philosophical school of thought articulated mainly by three American philosophers: Charles Sanders Peirce (1839-1914), William James (1842-1910), and John Dewey (1859-1952) (Creswell & Plano Clark, 2011; Sundin & Johannisson, 2005). Pragmatism is a philosophy of science that stresses the connection between truth and action, and contends that the decisive proof of beliefs is readiness to act on it (Fendt, Kaminska-Labbe & Sachs, 2008). Pragmatism focuses on the mutual infusion of action and knowledge; in other words it provides a link between action and knowledge without representing these as being mutually exclusive (Fendt *et al*., 2008). The Pragmatic approach focuses on tackling pressing current problems to create constructive knowledge, and subsequent translation of the developed knowledge into action (Fendt *et al*., 2008). This is also the belief of Tashakkori and Teddlie (1998) who viewed pragmatism as an interesting, clear and sensible underpinning for research that abstains from the truth and reality that has heated up paradigmatic debates over the years. Pragmatism encourages researchers to engage in what is appealing and has value, to study these issues in a way they understand, and use the results to generate positive effects within the value system being studied (Tashakkori & Teddlie, 1998).

Fendt *et al*. (2008) reiterated that the essence of acquiring scientific knowledge through research is to add value to the system, by helping people to have a better understanding of how to cope with the social world or to create a better working environment within organisations. Wicks and Freeman (1998) contended that the concept of practicality or expediency of the acquired knowledge can be considered from two perspectives: epistemological (are the data obtained credible, well-founded, and reliable?) and normative (does this help advance research course or add value to the system?). Pragmatism is widely accepted as the philosophical foundation for the mixed methods approach. Pragmatists argue that positivist and constructivist philosophical approaches can be successfully combined (Denscombe, 2008; Teddlie & Tashakkori, 2011). However, Johnson and Onwuegbuzie (2004) contended that the basis of the mixed methods approach to research is the basic assumption of the approach about knowledge or experience and examination. These differentiate pragmatist from quantitative and qualitative

approaches that are founded on positivist and interpretivist paradigms. Pragmatists use diverse methodologies and values, both qualitative and quantitative in nature, flexibly employing 'what works' (Creswell & Plano Clark, 2011).

Creswell (2003) agreed that there are various forms of pragmatism, many of which claim that knowledge results from actions, circumstances, and effects rather than antecedent conditions (as in post positivist approach). Creswell (2003) criticised the pragmatic approach as a philosophical basis for mixed methods on the grounds that it believes in "what works" as solutions to problems. The correct approach should view the research problem as more important than methodological preferences. Tashakkori and Teddlie, (1998) argue that researcher should use all approaches that will shed light on the problem at hand; multiple methods are seen as beneficial. Therefore, pragmatism provides the philosophical underpinning for mixed methods research.

According to Creswell (2003), pragmatism provides a basis for knowledge which has the following features:

- Pragmatism is not committed to any one system of philosophy and reality.
- Individual researchers have a freedom of choice. They are "free" to choose the methods, techniques, and procedures of research that best meet their needs and purposes.
- Pragmatists do not see the world as an absolute unity. In a similar way, mixed methods researchers look to many approaches to collecting and analysing data rather than subscribing to only one way (e.g. quantitative or qualitative).
- Truth is what works at the time: it is not based in a strict dualism between the mind and reality, nor is it completely independent of the mind. Thus, in mixed methods research, investigators use both quantitative and qualitative data because they work to provide the best understanding of a research problem.
- Pragmatist researchers look to the "what" and "how" of research, based on its intended consequences (i.e. where they want to go with it). Mixed methods researchers need to establish a purpose for their "mixing," a rationale for their decision to mix quantitative and qualitative data.
- Pragmatists agree that research always occurs in social, historical, political, and other contexts. In this way, mixed methods studies may include a postmodern turn, a theoretical lens that is reflexive of social justice and political aims.

- Pragmatists believe that we need to stop asking questions about reality and the laws of nature.

Therefore, for mixed methods researchers, pragmatism allows pluralistic approaches to research, different worldviews, and different postulates, as well as different forms of data collection and analysis in a single study.

5.4 Research approach

Construction management is an eclectic field of study that draws on a wide range of disciplines such as social sciences, natural sciences, management as well as well as engineering, to provide context depending on its requirements (Dainty, 2008; Fellows & Liu, 2008). Based on the four different paradigms provided in Table 5.1, it becomes obvious that there is no any perfect approach to research, it is just a question of meeting halfway (Amaratunga *et al*., 2002). This is because each approach has its own inherent advantages and disadvantages and the choice of approach to be employed in any research is dependent on the nature of the question to be addressed, the type of data as well as conclusions to be drawn. In order to provide a guide in identifying the most suitable approach to the collection, analysis and interpretation of this study, different research approaches were explored before making a choice.

5.4.1 Quantitative research approach

The roots of quantitative research approach lie particularly with positivism, which works with observable facts. The fundamental philosophy behind positivism is characterised by the assumption that human behaviour can be explained by social facts which can be examined by methodologies that embraces deductive logic approach of the natural science (Amaratunga *et al*., 2002). Neuman (1997) argued that Positivism is linked with some specific social theories; most notable are its association with rational choice, structural-functional, and exchange-theory frameworks. Positivism takes the form of an empirical and philosophical realism, sticking closely to a deductive approach based on hypothesis testing (Ponterotto, 2005). Positivism favours precise quantitative methods which usually take the form of experiments or surveys, generating data that is analysed statistically (Neuman, 1997). Quantitative researchers prefer exact measures and objective research, whereby hypotheses are tested to discern the nature of reality. It is also assumed that findings based on a study sample can be generalised to the

population. Two research philosophies that are subsumed within the positivist paradigm are behaviourism and empiricism (Amaratunga *et al*., 2002; Neuman, 1997).

A quantitative research approach supports the use of the questionnaire to elicit data, as well as using precise, reliable measures, testing hypotheses, and generating representative data through random sampling (Stiles, 2003). Lincoln and Guba (1985) summarised the underlying assumptions of a positivist approach as follows:

- That social and natural sciences should have the same goals, which is the discovery of laws that lead to explanation and prediction,
- That social and natural sciences should incorporate the same methodology (i.e., The hypothetico– deductive method),
- That concepts should be defined by empirical categories,
- That there is uniformity of nature in time and space (speaking to the existence of a true, identifiable reality),
- That laws of nature be derived from data, and
- That large sample suppresses idiosyncrasies in data and reveals general causes or the ultimate laws of nature.

In addition, Nau (1995) asserted that quantitative research examines differentiating characteristics, elemental properties and empirical boundaries and leans towards measuring how much and how often. The suitability of this approach in measuring the behavioural elements of the built environment led Awodele (2012) to conclude that the quantitative approach is relevant for confirmatory, explanatory and testing of hypotheses in research.

5.4.2 Qualitative Research approach

Qualitative Research approach is a disparate methodology which is linked to hermeneutics, a theory that provides the philosophical basis for phenomenological researchers. It stresses the need for a comprehensive reading and investigation of textual data, which could be a picture, written information or conversation (Neuman, 1997). According to Greener (2011) qualitative researchers or interpretivists believe that the external world cannot be accessed directly, but only indirectly through constructions that people have made of it. This concurs with Stiles's (2003) argument that interpretivism hinges on the idiosyncratic interpretation of available data because it is believed that the world is constructed socially from the interpretation of people

living in it. Ardley (2008) also contended that interpretivism takes into cognisance the experience of the individual and the associations between human consciousness and objects existing in the natural world.

However, proponents of interpretivism would argue that the present study involving organisational strategies and characteristics cannot hope to say anything meaningful about the social world by relying exclusively on rationalist methodologies (Dainty, 1998). The positivist research approaches, according to Dainty (1998), do not take into consideration the multifaceted nature of organisations' performance and characteristics. Furthermore, these approaches run the risk of confining the investigator to simplistic, 'unproblematic' observations, or phenomena that are already known. The researcher took cognisance of the arguments in favour of a phenomenological approach. Thus, although the present study was not philosophically rooted in interpretivism, certain parts of it are informed by the phenomenological principle of identifying salient features of organisation that are capable of revealing the complexity that surrounds their performance.

The researcher tried to take account that reality is complicated and disputable. No two organisations are entirely similar or exhibit the same characteristics; each is a unique entity. Therefore, to achieve a comprehensive understanding of the multifaceted nature of organisational performance, this research needed to use the interpretive approach to investigate the influence which strategies, organisational characteristics and environment have on organisational performance

5.4.3 Mixed methods approach

A mixed methods research approach is becoming increasingly acceptable across disciplines. Combining quantitative and qualitative data, the mixed methods approach is seen by some as the optimal way to tackle research problems in the social sciences (Johnson, Onwuegbuzie & Turner, 2007; Molina-Azorin, 2012). Christ (2009) argued that "mixed methods is more than mere methods, it also consists of quantitative and qualitative research. This means that mixed methods incorporates paradigms and philosophical assumptions, theoretical perspectives, as well as research questions and interpretations. In short, mixed methods encompass the totality of all phases of research, and not just the methods." Johnson *et al.* (2007: 123) provided a more detailed definition of mixed methods research, considering it as "the type of research in which

a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration."

Boyd, Finkelstein and Gove (2005) stated that quantitative and qualitative research approaches are complementary to one another. Combining quality research from both paradigms can move the strategic management field forward more quickly. Love *et al*. (2002) also argued that if construction management researchers are to offer solutions to problems confronting the construction industry, there is the need to adopt a vigorous philosophical approach that takes into cognisance both ontological and epistemological perspectives. They continued that until such a stance is taken, it is unlikely that construction management researchers will come to a full understanding of factors that influence organisational and project performance in construction. Dainty (2008) pointed out that most of the research within construction management can be considered sociological research, which focuses on understanding the structure and complex nature of interactions that shape the industry. He argued that using a single methodology cannot adequately reveal the complex nature of these relationships.

Therefore, the research uses mixed methods approach by drawing from its inherent advantages to enrich the quality of the results in this study. This is because mixed methods are capable of enhancing the confidence and credibility of results; its validity; and in intensifying creativity and innovation of methods (Easterby-Smith, Thorpe & Jackson, 2012). Easterby-Smith *et al.* (2012) added that mixed methods can assist in synthesising and integrating theories by combining confirmatory and exploratory research at the same time; which will provide greater diversity of views and generate stronger inferences. The approach has also been criticised, for example, its replicability has been queried and the relevance of the research design to questions to be addressed has been considered as disadvantage. This study however, applied careful selection of research design to address such issues.

5.5 Research approach and strategy adopted for the study

Examination of the relationship among the constructs illustrated in the conceptual model chapter Four, (organisational characteristic, strategies, resources and capability, environment and performance) requires attention in selecting ta suitable research approach t. In order to

make this selection, the study considered as key factors the main question to be answered by the research, the rational analysis of the nexus between the data to be obtained and analysis as well the conclusions .Consequently, the pragmatic approach was considered the most relevant to this study. Pragmatism is an approach of justifying the collective use of both qualitative and quantitative approaches in a research (Bryman, 2006). The overall aim of the study was to examine the determinants of organisational performance and establish the nature of relationship that exists between the constructs. To achieve this positivist approach was employed. This approach has been established to be efficient in explaining the behavioural aspect as well as measuring the descriptive aspect of built environment or construction management research (Amaratunga *et al*., 2002). Literature has shown that both qualitative and quantitative approaches are prevalent in construction management research (Amaratunga *et al*., 2002; Dainty, 2008; Love *et al*., 2002). It has also been asserted that to address the complex issue of performance of organisations, a qualitative approach is the most suitable (Amaratunga *et al*., 2002).

However, some of the studies on strategic management in construction utilised a single quantitative approach- (e.g. Kale & Arditi, 2003; Pamulu, 2010; Tan *et al*., 2012). According to Amaratunga *et al*. (2002) and Ankrah (2007) the essence of undertaking research at this stage is to advance a new perspective to an existing body of knowledge for which a quantitative approach is appropriate. Dainty (2008) and Love *et al*. (2002) asserted that to unravel the complexities that revolve around the construction industry, research in construction management needs to adopt multi-methodology by drawing from the strength of the two approaches as identified in the preceding sections (qualitative and quantitative approach sections). Based on this assertion, mixed methods methodology is considered appropriate for this study in that inferences that will be drawn will give a better understanding of the underlying phenomenon being measured.

In using mixed methods research, six research strategies have been identified and discussed by Creswell and Plano Clark (2011). Mixed methods research allows one to answer research questions using combined, multiple forms of data (Christ, 2009). Hence, the choice of research design depends upon the nature of research problem and the reasons for mixing the method (Creswell & Plano Clark, 2011). The mixed methods strategies that provide useful frameworks for researchers include: the convergent parallel design, the explanatory sequential design, the

exploratory sequential design, the embedded design, the transformative design, and the multiple design. Of these the research adopted a convergent parallel design.

5.5.1 Convergent parallel design strategy

In existing literature, this strategy is diversely described as convergent methodology, mixed methodology, multiple/multi-method research, parallel study, convergent validation, concurrent triangulation (between- or across-method triangulation), integrative research, and mixed research (Creswell *et al.*, 2003; Johnson *et al*., 2007; Teshakkori & Teddlie, 1998). These various conceptualisations converge on the idea that qualitative and quantitative methods are complementary to one another, rather than being rival ideas. Concurrent or convergent mixed method data collection strategies are employed to validate quantitative data with qualitative data, to transform the data for comparison, or to address different types of questions (Creswell & Plano Clark 2007). Comparisons of findings can be easily drawn when both qualitative and quantitative data are sourced from the same individuals, and the two types of data can contribute equally to addressing the research questions. According to Creswell and Plano Clark (2011), the convergent design involves the collection and analysis of two independent strands of qualitative and quantitative data in a two stage, single phase study; combining, merging or integrating the result of the two strands; and then searching for points of meeting, disagreement, contradictions, or relationship between the two strands.

The purpose of this research was to provide a comprehensive understanding of how organisational characteristics and strategies influence performance, taking into account business environment conditions. To address the questions raised Chapter One, concurrent triangulation of approaches was required; this is referred to as between or across triangulation (Denzin, 1978). Jick (1979) argued that triangulation is largely a medium for cross validation when two or more divergent methods happen to be congruent and yield comparable data. This study required multiple and independent measures to reach the same conclusion and provide a better understanding of the underlying phenomenon and thus, the use of mixed methods to investigate the dimensions of the research problem would provide better results.

Convergent mixed methods strategy is an effective design that is more flexible and reliable and offers the possibility of gathering both qualitative and quantitative data concurrently. It also makes independent analysis and interpretation of the two data sets easier. Nevertheless, it demands appreciable effort and knowledge because of the concurrent nature of data collection

and the use of different samples and sample size which may perhaps affect the detail discussion and generalisation of the results (Creswell & Plano Clark, 2011). The researcher sought the help of peers and drew strengths from literature to eliminate the problems related to data collection. The research also ensured that the respondents in quantitative and qualitative phases were the same.

In using convergent mixed methods design, Creswell and Plano Clark (2011) identified four procedural steps that convergent mixed methods researcher should follow:

- Collect both qualitative and quantitative data concurrently but consider the data sets as t separate and independent;
- The two data sets are analysed separately and independently from each other using typical quantitative and qualitative analytic techniques;
- The next stage is the merging which may include comparing the results or converting them in order to enhance their combined interpretation. Interpretation of the results to understand to what extent or in what ways the two data types deviate or combine to develop a better understanding of the study main aim.

Figure 5.1 illustrates the convergent mixed methods design used in the present study, using independent quantitative and qualitative data streams for triangulation.

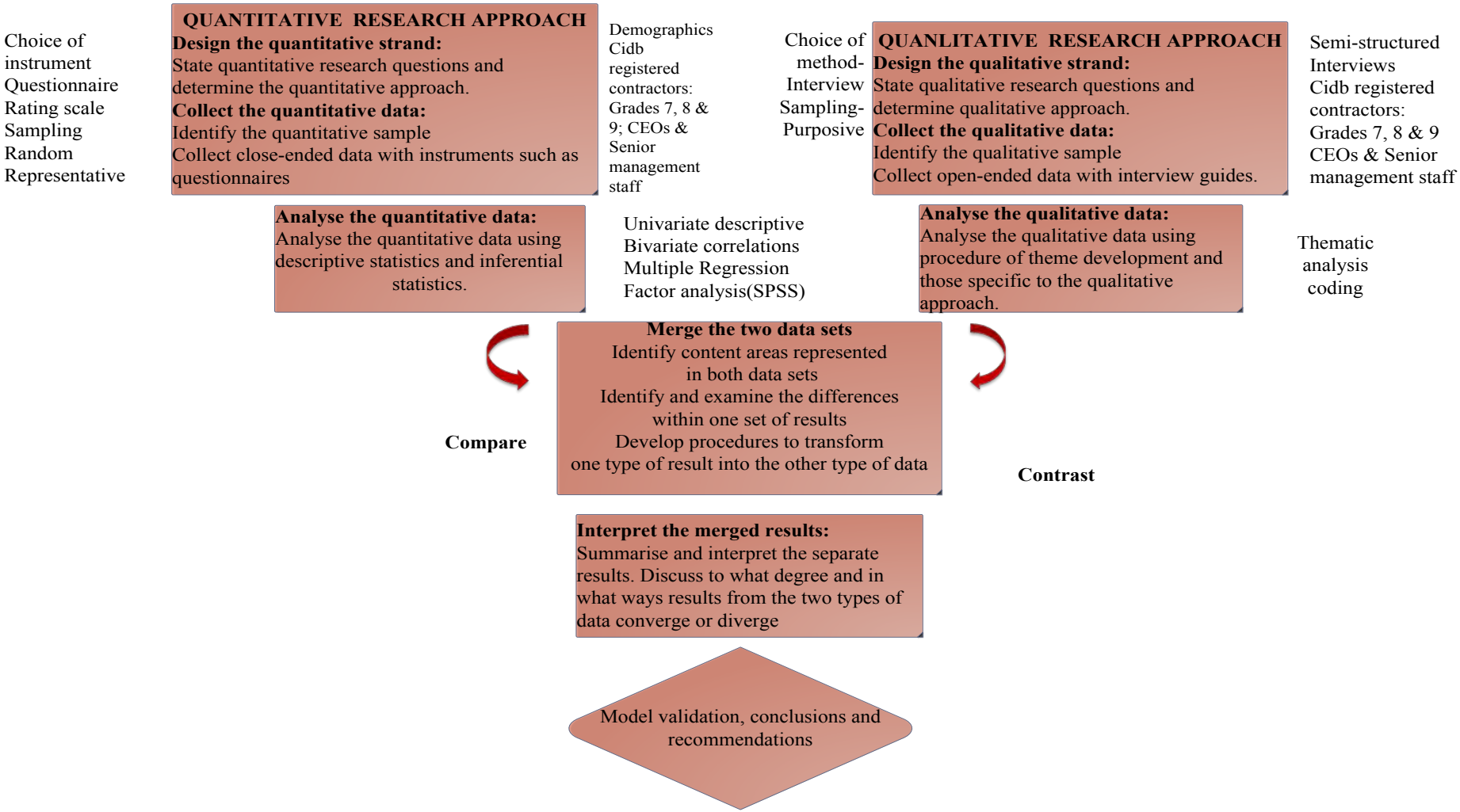

Figure 5. 1: **Flowchart of the stages in implementing a convergent design. Adapted from Creswell and Plano Clark (2011: 79).**

5.6 Data collection procedures

The present study investigated the following question:

What are the determinants of construction organisations performance and how can the existing strategic management theories be used in explaining the cause of performance differentials?

As noted above, in order to answer this question broadly and in depth, the researcher chose to collect both quantitative and qualitative data. These two approaches constituted two independent strands within the research, generating qualitative and quantitative data sets. Creswell and Plano Clark (2011: 417) defined a strand within a research design as "a component of a mixed methods study that encompasses the basic process of conducting quantitative or qualitative research: posing questions, collecting data, analysing data, and interpreting results based on that data."

There are several types of data a mixed methods researcher might collect for both the quantitative and qualitative strands. Therefore the researcher must carefully consider the kinds and sources of data that will best answer the research questions (Creswell & Plano Clark, 2011).

5.6.1 Quantitative strand

The most commonly adopted method of collecting data in social research is through surveys (Blaxter, Hughes & Tight, 2006). Surveys offer a quantitative or numeric description of the trends, attitudes or opinions of a population by studying a sample of that population (Creswell, 2009). Saunders *et al*. (2009) provide a broader definition of surveys as a research strategy that entails structured collection of data from a sizeable population. They further note that although the term is frequently used to describe the collection of data using questionnaires, it can also involve other techniques such as structured interviews and structured observation.

The current study sought to develop a better understanding of how organisational characteristics, strategies and environmental factors influence the performance of organisations. Useful information could be gathered by asking relevant construction industry participants a sequence of questions about the variables of interest. The traditional quantitative questionnaire approach was therefore deemed appropriate for gathering quantitative information. This type of questionnaire requires respondents to rate their responses (on a

numerical scale) to a set of questions designed by the researcher (Creswell & Plano Clark, 2011). The use of quantitative questionnaires in explanatory research enables the researcher to investigate and describe the nature of the relationship between variables (Saunders *et al.,* 2009)

However, Saunders *et al.* (2009) contended that questionnaire design differs based on the method of administering it and the amount of contact the researcher has with the respondents. They highlight several ways a questionnaire can be administered. *Self-administered questionnaires* are completed by the respondents. Blaxter *et al.* (2006) asserted that despite the huge benefits of different methods of administering questionnaires, each of these methods has its inherent demerits. Face-to-face self-administered questionnaires may get a better response rate, but take a lot of the researcher's time. Postal and internet-mediated surveys are very likely to have lower response rates and possibly poorer answers, because the researcher is not available to respond to participants' queries; but these methods allow a larger population to be considered (Blaxter *et al.,* 2006).

5.6.1.1 The constructs used in the questionnaire design

In designing the questionnaires, the constructs used for the research were derived from an extensive review of the literature, both within and outside the construction management research literature. These constructs consisted of all the variables included in the conceptual model put forward in Chapter 4. Table 5.2 shows the constructs that were examined in the questionnaire, and the research from which the scales were sourced. The items used in measuring the constructs are shown in Appendix F.

Table 5. 2: Constructs for the study and sources of measurement items

Contingency factors	Constructs	Sources of the measurement items
Organisational characteristics	Management style; Decision-making style; and Organisational structure	Amzat and Idris (2012); Lansley (1987); Russ *et al*., (1996); Shiraz *et al.* (1996).
Strategies	Business strategy: Differentiation; Cost-leadership; and focus	Kale and Arditi (2002); Nandakumar *et al.* (2010), Pamulu (2010)
Resources and capabilities	Financial; Human resources; Technology	Cheah *et al*. (2007); Lynch, 2012; Rush, Bessant, and Hobday (2007).
Organisational environment dimensions	Dynamism; Competitiveness; Complexity; and Munificence	Dess and Beard (1984); Chi *et al*. (2011); Kabadayi *et al.* (2007; Nandakumar *et al.* (2010).
Organisational performance	Financial and non-financial	Bassioni (2004); Bergin-seer (2004); Gupta and Govindarajan (1984); Nandakumar *et a*l. (2010), Porter (1980); Warren (2009); Wu (2009).

5.6.1.2 Unit of analysis

Teddlie and Tashakkori (2009) refer to unit of analysis as the individual or group of cases about which the completed research intends to express something. The unit of analysis is therefore the focus in collecting all data required for the research. The main objective of this study was to establish the relationship between organisational characteristics, resources and capabilities, strategies, and organisational performance of construction organisations. The unit of analysis for the study was thus competitive strategies, resources/capabilities, and organisational characteristics that can lead to superior organisational performance of construction organisations. In particular, the study focused on those construction firms that were active and duly registered with cidb as at April 2013 and have been in business for over five years. The questions posed in the questionnaire thus focused on those organisations, asking employees in these organisations to provide information about their firms. The questionnaire enquired about the characteristics of the respondent's organisation, and about how the strategies adopted to move the organisation forward influence the organisation's performance.

Due to the large number of contractors registered with the cidb and the nature of the research questions, not all the organisations were relevant to the study. The study focused on contractors who were registered in grades 7, 8 and 9 of the cidb register of contractors. This choice was based on cidb (2012) assertion that organisations in those categories adopt a proactive strategic approach and have in place the technology and financial strength for competitive advantage. The sample was further limited by including only those contractors in the above grades who carried out their trade in Gauteng, Kwazulu Natal and Western Cape provinces of South Africa. These provinces were considered due to the concentration of construction organisations in them and also because approximately 70% of all projects commissioned by the public sector in the last five years have been executed in those provinces (Stat SA, 2011; 2012).

5.6.1.3 Development of the questionnaire

The questionnaire was designed to eliminate difficulties respondents might encounter in answering the questions, and to obtain a high response rate. Creswell (2003) asserted that designing a questionnaire properly is crucial for successful collection of data. Thus, the design of the questionnaire for this study adhered to the five principles of good design as highlighted by Easterby-Smith *et al*. (2012). To ensure adherence to these principles, the designed questionnaire was sent to four peer researchers in construction management for review as well as the researcher's supervisor to eliminate any inherent problems.

The development of the questionnaire started with an email invitation to targeted contractors to participate, as required by research ethics. The quantitative questionnaire was designed primarily to obtain information on the impacts of organisational characteristics, resources and capabilities and strategies with respect to environmental conditions on organisational performance. Emphasis was also placed on questions to establish how the organisation achieves a strategic fit to its task environments. The aim was to be able to investigate the relationships between organisational characteristics, resources and capabilities, strategies, environment, and corporate performance.

The items of measurement utilised in measuring the constructs in the study are given in Appendix B-D. All the questions were rated on a series of 5-point Likert items, grouped into a series of Likert scales used in measuring each of the constructs (see Holt, 2014). The questionnaire was organised into four sections. The first section was designed to elicit general

information about the respondents. This included the name of the organisation; years of existence; the organisation's size in terms of total number full-time employees; the organisation's turnover for the last five years; the class of works and their grade on the cidb register; and the main region for their business activities.

The second section of the questionnaire comprised of scales used in measuring organisational characteristics namely organisational structure, decision-making style and management style. Organisational structure and decision-making style were measured with four items, while management style was estimated with six items. The respondents were asked to rate the influence of these characteristics on their organisation in the last five years. The second part of this section consisted of items used in measuring competitive strategy. Six items were used in measuring differentiation cost-leadership strategies while focus strategy was calculated with four items.

These items of measurement indicated several competitive undertakings of construction organisations and the respondents were requested to show the degree to which their organisations emphasised on these events compare with their major industry competitors in the last five years. The last part provided scales for measuring resources and capabilities of organisations. This included financial, technological and human resources. Financial resources were estimated using 4 items, technological resources with 5, while human resources were measured with 6 items. The respondents were asked to indicate the extent to which the resources influenced their organisation's activities in the last five years.

The third section centred on organisations' business environment within the South African construction industry. The environmental variables were divided into exogenous and endogenous factors (adapted from Ibrahim, Price & Dainty, 2006), involving both relationships with stakeholders and macroeconomic variables. This part of the questionnaire also comprised of scales used to measure environmental constructs that might affect performance namely munificence, complexity, competitive intensity and dynamism. Munificence and dynamic of the environment were estimated using four items, environmental complexity with three, and competitive intensity was estimated from six items. The respondents were requested to rate the changes in their business environment in the last five years and indicate the influence of the variables over the same period.

The fourth section provided scales for measuring organisational performance. The questionnaire was used to obtain quasi-objective and subjective performance measures. The quasi-objective measures were classed under competitor's effectiveness which was defined by Nandakumar (2008) as the degree to which performance of an organisation has improved its competitive performance in terms of people management, productivity (the total turnover of the companies projects less all costs subcontracted or supplied by other parties), profitability, customer satisfaction, investment (measures of organisation's investment), financial management (financial ratios), capability, human resource (competent work force) and market growth/share. The respondents were asked to rate the performance based on these items in the last five years. The subjective performance was tagged as objective achievement and this was described by Nandakumar (2008) as the degree to which an organisation has been able to achieve both its short-term and long-term performance objectives to reduce the challenges. This was measured with six items and the respondent was requested to indicate the degree to which their organisation has been able to achieve its overall objectives in the last five years.

5.6.1.4 Retrieval of archival documents

The archival data relating to the financial performance data of the respondents' organisations were obtained from an anonymous source and also from the organisation's annual reports on their various websites. The data from the websites of the respondents organisations were compared with the anonymous source and no discrepancies were found. Other information solicited during the study were policy statements and procedures, project or organisational past performance record, mission statement and other publications regarding their respective organisation. Financial data were sourced for a 5-year period and the average values of ROCE calculated for the period from the data sourced. This is because ROCE measures essentially how well a business strategy used turns assets to profit.

5.6.1.5 Pilot survey

Pilot testing is required to eliminate threats to the internal validity of data. A pilot test is a small-scale study to test a questionnaire, interview checklist or observation schedule. It is done to minimise the possibility of respondents having problems in answering the questions and of data recording problems, as well as to allow some assessment of the questions' validity and the reliability of the data that will be collected (Saunders *et al*., 2009). Pilot surveys also highlight any parts of the questionnaire that need clarification and refinement. For the purposes of the

present study, feedback on the draft questionnaire was sought by mailing the questionnaire to four researchers in the built environment within South Africa to examine the completeness of the questions. Thereafter, 30 questionnaires were sent to contractors in South Africa, sixteen of which were completed. In all cases top management members in their respective organisations responded to the pilot survey. The responses provided by the contractors, built environment researchers and the researcher's supervisor were used in refining the questionnaire prior to its full scale administration.

5.6.1.6 Sampling technique and sampling size

It would have been impossible to obtain data from all the organisations included in the study population due to time and cost constraints, as well as the geographical dispersion of the organisations. Hence, sampling was used in order to have a size that will be representative of the population being studied. The sampling frame for this research were the contractors on grades 7, 8 and 9 on cidb registers of contractors for both civil engineering and general building contracts operating in the three provinces shown in Table 5.3.

Table 5. 3: List of contractors on cidb register

Province	Grade	Civil Engineering	General Building	Total
Gauteng	7	120	89	209
	8	50	44	94
	9	33	23	56
Kwazulu Natal	7	35	55	90
	8	22	13	35
	9	4	1	5
Western Cape	7	25	28	53
	8	11	10	21
	9	7	7	14
Total		**307**	**270**	**577**

Source: cidb (April, 2013) (available at: https://registers.cidb.org.za/PublicContractors/)

In order to ascertain a suitable number of participants to select for the survey from the sampling frame, the iterative formula used by Ankrah (2007) was adopted:

$$ss = \frac{z^2 p(1-p)}{c^2}$$

Where:

ss = sample size

z = standardised variable

p = percentage picking a choice, expressed as a decimal

c = confidence interval, expressed as a decimal

In order to obtain a sample size with a given degree of accuracy, the worst case percentage picking choice of 50% was assumed as in Ankrah (2007); 95% confidence level was also assumed as in other studies with a significance level of α = 0.05; *z* = 1.96 at 95% confidence level; and a confidence interval (c) of ±10% was taken:

$$ss = \frac{1.96^2 \text{ x } 0.5(1\text{-}0.5)}{0.1^2}$$

ss = 96.04

The preliminary sample size from the sample frame for the quantitative questionnaire survey was then 96 construction organisations, being the figure according to Ankrah (2007) as required to generate a new sample size:

$$New\ ss = \frac{ss}{1 + \left[(ss-1) \big/ pop \right]}$$

Where *pop* = population

$$\text{Therefore } New\ ss = \frac{96.04}{1 + \left[(96.04-1) \big/ 577 \right]}$$

New *ss* = 82.46, adopted value. = 83

From the above calculations, the sample size for this study was estimated to be 83 construction organisations. Ankrah (2007) noted that the construction industry is a difficult environment to obtain a high level of responses most especially when questionnaire survey is involved. As a

result of this, Idrus and Newman (2002) considered any questionnaire survey response in the range of 20% to 30% to be adequate for research in the construction industry. Therefore, to take into account non-response, the highest boundary is taken (30%) to adjust for the survey sample.

$$Survey\,sample\,size = {}^{New\,ss}\!/_{0.3} = 277 \text{ Construction organisations}$$

Therefore, based on this calculation, 277 construction organisations from the cidb database were randomly selected. Table 5.4 shows the sample size surveyed from each contractors grade and r province

Table 5. 4: Stratification of the sample

Province	Grade	Civil Engineering	General Building	Total
Gauteng	7	57	42	99
	8	24	21	45
	9	16	11	27
Kwazulu Natal	7	17	26	43
	8	10	10	20
	9	2	1	3
Western Cape	7	12	13	25
	8	5	4	9
	9	3	3	6
Total		**146**	**131**	**277**

5.8 Qualitative strand

Proverbs and Gameson (2008) acknowledged that case study research is relevant to the construction industry, where the driving force is the project involving the presence of different kinds of organisations and businesses. Therefore, the qualitative phase involved a multiple case study design for the collection and analysis of data (Yin, 2009). Yin (2009: 18) defines a case study as:

> "*An inquiry that copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis.*"

Yin (2009) asserted that the case study method is the most likely and appropriate strategy for "how" and "why" research questions. This strategy was used to address those research questions, such as how organisational characteristics and competitive strategies influence performance, and also to give an in-depth knowledge about a specific situation (Collis & Hussey, 2003; Creswell, 2005). In conducting case study research, Remenyi, Money, Price and Bannister (cited in Proverbs & Gameson, 2008) highlighted the characteristics of a rigorous case study. These include that the case study draws on multiple sources of evidence; the evidence needs to be based on triangulation of sources; that it seeks to provide meaning in context; shows an in-depth understanding of central issues; focuses on an organisation, a situation or a context; and that the study must be reasonably bounded.

5.7 Questionnaire administration and collection

In administering the questionnaires, a comprehensive list of contractors with their active contact details were obtained from the cidb. The selection of the sample size was based on non-response bias using a calculation of minimum sample size technique (Ankrah, 2007) as described in the preceding section (section 5.6.1.5). The targeted contractors in the selected regions were invited through an email to participate in the survey. (The invitation letter was used as a way of notifying them of the link to the questionnaire that they were to expect, in the hope that this would encourage a higher response rate.) An internet based survey was used because of the geographical spread of the companies involved in the study (Saunders *et al.,* 2009). Although online surveys often encounter a low response rate (Wiseman, 2003; Archer, 2008), there are many benefits to web-based surveys, these include low cost, broad accessibility of survey design and application instruments, ease of execution including reminders, and built-in characteristics that make data cleaning easy and enhance the survey knowledge for both respondents and researchers (Boyer, Adams & Lucero, 2010; Dillman, Smyth & Christian, 2009; Israel, 2011). The current research used Survey Monkey (www.surveymonkey.com) to run the survey online. The link was sent to the Chief Executive Officers (CEOs) of each of the companies or the officer who has the widest and deepest understanding of the company's strategic issues being examined based data provided by the cidb. The data collection was carried out between April and November, 2013.

Various problems were encountered during the questionnaire administration phase. Some of the participants opted out of the study, and other emails bounced. Some of the targeted

participants telephoned complaining that the e-mail was not received. Hard copies of the questionnaire were sent to such participants. Telephone calls and reminders to participate in the survey were made weekly to encourage a good response through Survey Monkey (Blaxter *et al*., 2006).

5.7.1 Response rate

Out of the 277 survey questionnaires administered, 72 were returned. All the questionnaires were substantively completed, so they were all considered valid for data analysis that is presented later. The response rate was 26%, which was considered acceptable within the sphere of construction management. It has been asserted that postal survey response rates of more than 30% are rare (Alreck & Settle, 2004; Black, Akintoye & Fitzgerald, 2000; Takim, Akintoye & Kelly, 2004). Petchenik and Watermolen (2011) report that the response rates from online or web-based surveys are 11% less than postal and phone surveys, and response rates of response as low as 2% have been reported. Therefore, the response rate in the current study was considered reasonable and within the range given in previous studies. Table 5.5 shows how comparable the research response rate was to similar studies in other countries.

Table 5. 5: Similar Response rates in similar studies of strategic management in construction

Author/year	Research title	Country of research	Response rate
Kale and Arditi (2003)	Differentiation, conformity and construction firm performance	U.S	21% (103/492)
Price *et al*. (2003)	Changing strategic management practice within UK construction industry	UK	22.5% (45/200)
Cheah *et al.* (2007)	Strategic analysis of large local construction firms in China	China	28.3% (85/300)
Chew *et al*. (2008)	Core capability and competitive strategy for construction SMEs in China	China	13.3% (133/1000)
Kazaz and Ulubeyli (2009)	Strategic management practices in Turkish construction firms	Turkey	37.4% (52/139)
Pamulu (2010)	Strategic management practices in the construction industry: a study of Indonesian enterprises	Indonesia	23.9% (120/503)
Tan *et al*. (2012)	Competition Environment, Strategy, and Performance in the Hong Kong construction industry	Hong Kong	19.6% (61/312)
Li and Ling (2012)	Critical strategies for Chinese architectural, engineering and construction firms to achieve profitability	China	28.5% (45/158)

5.7.2 Margin error of sample size

It is generally acknowledged among researchers that to undertake inferential statistical analysis, a large sample is necessary. Sample size has a direct influence on the suitability and statistical power of multiple regressions. Generally a sample sizes more than the threshold of 30 observations (n > 30) is considered acceptable (Hair *et al*., 2010). The essence of adopting inferential statistics in this study was to assist in drawing conclusions about the study population based on data collected from a sample. Thus the sample size of 72 obtained in this

survey was considered appropriate for the purpose of inferential statistical analysis to be carried out. The margin of error based on 72 responses obtained was calculated by using the formula given by Ankrah (2007) as 11.55% at 95% level of confidence. This implies that there was a 95% probability that results obtained from this survey lie within a ± 11.55% range of population samples.

5.8.1 Justification of the case study research strategy

A case study research strategy was included in the research on the grounds that a case study research can adjust to new issues and ideas as they surface (Amaratunga *et al*., 2002).This feature was particularly relevant to the study due to the nature of the investigation and multiple source of evidence available.

5.8.1.1 The nature of investigation

There is dearth of previous empirical research focusing on the area of this research in South Africa; hence an exploratory approach was necessary. Barkley (2006) and Yin (2009) argued that the case study approach is suitable for exploratory inquiry where "how" and "why" research questions are to be answered. An exploratory case study provides an opportunity to study the case in its natural setting, by taking a holistic approach that gives an in-depth understanding of a complex phenomenon like organisational characteristics and business environment (Ntiyakunze, 2011). An exploratory case study approach was therefore chosen in the prospect of finding why construction organisations pursue different strategies to improve their competitive performance, why and how they measure performance, and how organisational characteristics influence organisational performance.

5.8.1.2 Previous empirical studies in the field

Quite a number of studies in other countries have used a survey approach to explore the competitive strategies used by construction enterprises (e.g. Kale & Arditi, 2002, 2003; Li & Ling, 2012; Manley *et al*., 2009; Tan *et al.,* 2012). These studies used a top-down method (deductive), which might not give a comprehensive understanding of the root cause of performance variability among the organisations studied. Love *et al*. (2002) and Dainty (2008) argued that for construction management researchers to have an in-depth understanding of the complex nature of relationships, or to offer solutions to the numerous problems being confronted by the construction industry, there is the need for researchers to adopt both a top-

down and bottom-up approach (inductive) as strategy of inquiry. A few researchers such as Whitla *et al*. (2006) adopted a two-stage qualitative case study as bottom-up strategy to investigate the global competitive strategies used by British construction firms; and also, Zhao *et al*. (2009), adopted a qualitative approach to better understand the influence of competitive strategy on Chinese construction firms in the international market. The present study differed from these in that it did not address international strategies used by construction organisations. However, it shared common ground in taking an inductive, qualitative approach to developing a richer understanding of factors affecting construction firms' performance. Against this backdrop, the references provided formed the basis for choosing a case study approach as one of the methods of inquiry for the research.

5.8.2 Case study design and case selection

Rowley (2002) suggested that case study designs can be classified into one of two categories, holistic (single) versus embedded (multiple), to reflect the unit of analysis in each case study and the number of case studies contributing to the design. The multiple case study categories is more preferred because of the logic of replication: the more the cases studied, the more robust are the results of the investigation (Rowley, 2002). However, there are constraints in designing and selecting case studies. Proverbs and Gameson (2008) itemised the constraints to include: the available time for the research; availability of documentary evidences; access to the interviewees; the purpose of the investigation; and the number of cases. A clear understanding of those factors will enhance the selection process for a case study.

The selection of the case refers to the unit of analysis which is considered vital to case study research; in fact, it is the basis for a case study. As discussed previously, unit of analysis refers to the phenomenon under study, about which data is collected and analysed (Collis & Hussey, 2003). The unit of analysis may be an individual, groups of individuals, an organisation or a unit within an organisation, depending on the design. As discussed previously, the unit of analysis for this study was construction organisations (civil and general building firms in Grades 7, 8 and 9 in the three provincial regions under consideration). Thus the cases for this study were construction firms.

Creswell and Plano Clark (2011) contended that a good option for mixed methods research is to have different sample sizes, with the size of qualitative sample much smaller than the

quantitative sample in order to gain more rigorous qualitative evaluation. The study adopted this approach. The selection of the specific cases was guided by the information-oriented strategy of seeking maximum between-case variation (Creswell & Plano Clark 2011; Flyvbjerg, 2006) This case selection approach recommends three to four cases which are very different on one dimension, such as size, form of organization, location, or budget. Table 5.6 provides the summary of the selection strategy and cases.

Table 5. 6: Strategies for the Selection of Samples and Cases

	Type of Selection	Purpose
A	Random selection	To avoid systematic biases in the sample. The sample's size is decisive for generalization
	1. Random sample	To achieve a representative sample which allows for generalization for the entire population
	2. Stratified sample	To generalize for specially selected sub-groups within the population
B.	Information-oriented selection	To maximize the utility of information from small samples and single cases. Cases are selected on the basis of expectations about their information content
	1.Extreme or deviant cases	To obtain information on unusual cases, which can be especially problematic or especially good in a more closely, defined sense?
	2. Maximum variation cases	To obtain information about the significance of various circumstances for case process and outcome; e.g., three to four cases which are very different on one dimension: size, form of organization, location, budget, etc.
	3. Critical cases	To achieve information which permits logical deductions of the type, 'if this is (not) valid for this case, then it applies to all (no) cases.'
	4. Paradigmatic cases	To develop a metaphor or establish a school for the domain which the case concerns.

Source: Flyvbjerg (2006)

To select these cases, twelve organisations were invited to particpate in the research. These organisations were selected based on initial responses in the quantitative phase (pilot study). They were spread across the three grades (7, 8 & 9). The organisations selected were those that could grant access to specific persons responsible for the formulation of business plans and strategic decision-making within the organisation. Of the 12 organisations contacted and introduced to the scope of the research only 4 agreed to participate in this phase of the study.

Table 5.7 shows the organisations that were the cases in the study, stating their years of experience, number of employees, class of work, and the position of the interviewee.

Table 5. 7: Background information of the respondents' organisation in the case study

Organisation's Code	Grade	Class of work	Number of years in business	Number Employees	Position of the Interviewee
W	9	CE & GB	30	2000	CEO
X	9	CE	13	278	Director
Y	9	CE & GB	Over 40	12000	Director
Z	7	GB	51	Over 100	CEO

CE- Civil Engineering; GB- General Building; CEO- Chief Executive Officer

5.8.3 Pilot testing

Turner (2010) asserted that a crucial component to interview preparation is pilot testing the interview protocol. Kvale (2007) argued that pilot testing interview questions helps the researcher to identify any errors, restrictions, or other weaknesses within the interview design, thus allowing the researcher to refine the interview questions prior to the actual data collection interviews. Pilot interviews also allow the researcher to adjust the research questions if necessary. Turner (2010) posited that pilot testing of interview questions should be undertaken with respondents who are similar to those taking part in the implemented study. Hence, the interview protocol was refined and corrected by the researcher's supervisor before it was pilot tested with a construction organisation in Cape Town. The feedback received was used in revising the interview instrument.

5.8.5 Data collection

Semi-structured face-to-face interviews and document analysis were used to obtain data from the designated member of the management team in each of the participating organisations. The data was acquired from multiple sources as recommended by Ivankova and Stick (2007), to improve the depth and increase the richness of each case. The interview questions allowed for open-ended responses. This style of interviewing permits the respondents to contribute as much detailed information as they wish, and it also gives the researcher a chance to ask probing questions as a means of follow-up (Turner, 2010). Knox and Burkard (2009) and Polkinghorne (1994) assert that face-to-face interviews generate reliable and deep descriptions of phenomena through the interviewer's ability to facilitate trust and openness in the interviewee, which then

minimises the interviewee's need for impression management and enables the examination of her or his private experiences. The main challenge in working with semi-structured interviews is the difficulty of coding the data (Creswell, 2007). However, the affordances of this approach outweigh the disadvantages in the context of the present study.

The main objective of this phase was to achieve an in-depth knowledge of the situations within the organisations with respect to the influence of organisational characteristics, strategies and environment on the organisation's performance. The researcher prepared an interview guide containing structured questions to ensure the respondents were asked the same basic prompt questions (see Appendix E). Four interviews were conducted and each took between 45 minutes and 1 hour. The questionnaire format was used as a checklist. The questionnaire consisted of four sections, the first part being general and intended to get background information about the construction organisation and other relevant data of interest to the researcher. The other sections asked specific questions on organisational characteristics, strategies, business environment and performance.

The first interview was conducted with the CEO of construction organisation Z in Cape Town (cidb grade 7). The second took place in Gauteng with the director of human resources and business development of construction organisation Y. Construction organisation X is located in Kwazulu Natal but the interview with the director took place at the organisation's branch office in Johannesburg. The last interview was conducted with the CEO of construction organisation W in Cape Town. All the interviews were audio recorded with the permission of the interviewees and later transcribed. The transcribed interviews were examined to identify main themes and sub-themes common to the transcript from each interview and a codebook was used to guide the transcript analysis. In order to simplify the analysis, a spreadsheet was used to assist in coding, relating, and bringing together similar themes and sub-themes from the transcripts. A spreadsheet was used to code and analyse data because of the non-availability of other software at the University of Cape Town that could assist in qualitative analysis of the interview transcripts and this helped the researcher in organising the data in meaningful ways.

The data were later analysed thematically using the approach proposed by (Blaxter *et al*. 2006) which was discussed in more detail under qualitative data analysis. This was considered appropriate seeing that the qualitative data analysis primarily entailed using the responses or

comments from the senior managers to assess the construction organisations' performance in the industry according to the conceptual framework of the research.

5.8.6 Document analysis

The qualitative approach used here involves case studies, the analysis of archival documents of the organisations which were examined to ascertain all the available and relevant printed information about the organisations. Documents requested for and examined during the case studies include: organisation mission statements which all of them have on their websites; company policies and procedures (this comprises terms of employment, key performance indicators, evaluation instruments etc.). Also, relevant information on organisation performance (i.e. customer company evaluation); and organisational leaflets and brochures were sought. Case study includes interviews, analysis of company history and financial reports, notes were also taken to reduce the possibility of data being lost from the analysis. The interviews were audio recorded and observation notes were taken during the interviews and document analysis. This was done to give an audit track of all the information sourced and analysed as used by Naismith (2007).

However, in adhering to research ethical considerations and to avoid breach of respondents' confidentiality, Yin's (2009) recommend that the database and relevant data should be available and formally presented with the report was disregarded. Although, multiple sources of evidence were obtained to triangulate views within the same data set, but the ethical consideration was not compromised. The interview transcript provided a chain of data which related to the early literature reviewed, the aim of the research, the objectives, conceptual model, the hypotheses as well as the analysis, to the conclusions.

5.9 Criteria for judging the quality of research designs

Yin (2009) identified four criteria that can be used to measure the quality of a research design at various research stages: construct validity, internal validity, external validity, and reliability. This section provides an explanation on how the quality of research design or potential adoption of both quantitative and qualitative approach design was assessed.

According to Creswell and Plano Clark (2011), the concept of validity is different in quantitative and qualitative research, although in both approaches it is used to ensure or check

the quality of data, the results, and their interpretation. Quantitative researchers design their studies to reduce the threats to internal and external validity of the instrument used.

5.9.1 Validity and reliability in quantitative research

Internal validity

According to Fellows and Liu, (2008) and Yin (2009), internal validity is the extent to which a measured and observed effect among variables is due to an identified causal, rather than a spurious relationship. The main concern of survey designs with respect to internal validity is around the quality of the scores from the questionnaire, and the quality of the conclusions that can be drawn from the findings through the analysis. It therefore becomes essential for researchers to consider content, criterion-related and construct validity. Content validity refers to the extent to which the questionnaire items represent all facets of the constructs being measured. In this research efforts were made to ensure content validity through an extensive review of literature in which the items to be included in the questionnaire.

Criterion-related validity deals with whether the scores link to some external standards, such as scores on a similar instrument. To safeguard this kind of validity, the measure of the constructs were correlated and these correlations were found to be positive in all circumstances. The financial measure of organisational performance used (Return on investment) was calculated (Pertusa-Ortega *et al*., 2008).

Construct validity describes whether the items measure what they are intended to observe (Creswell & Plano Clark, 2011). In order to examine the construct validity of the questionnaire, both divergent and convergent validity were explored. The positive and significant correlations as well as the means of all the items included in each scale were examined; this was found to be positive and significant.

Convergent validity was also investigated to determine the correlation between the variables identified and the constructs used in the research, the significance of the factor loading and correlation results showed the existence of convergent validity (Isik *et al.*, 2010). The two data sets (quantitative and qualitative) as well as archival documents (annual report and financial records), were analysed separately and independently later merge to draw conclusions (Creswell & Plano Clark, 2011; Edward & Holt, 2010).

Threats to internal validity in this study were reduced by exploring several organisations and through merging of results achieved by methodological triangulation. However, internal validity is said to receive more attention in experiments and quasi-experimental research than in exploratory case studies because its main focus is on causal (explanatory) case studies rather than exploratory cases (Yin, 2009).

External validity

External validity describes the extent to which the research findings can be generalised to a larger research population or setting within which the research is undertaken (an important goal of quantitative research). It can be subdivided into ecological validity and population validity Population validity refers to the degree to which it is possible to generalise findings from the sample population to the larger population, while ecological validity is concerned with the degree to which it is possible to generalise from the actual research setting to other contexts and settings (Creswell & Plano Clark, 2011; Fellows & Liu, 2008; Yin, 2009). To achieve population validity, the present research ensured the representativeness of the sample used using a non-bias approach. The ecological validity though not a major concern in quantitative research, was achieved through design of the questionnaire in such a way that there is no wrong or right answer.

Reliability

Reliability in quantitative research indicates that the scores received from the respondents are consistent and stable over time (Creswell & Plano Clark, 2011). In order to check that the scores are reliable, a statistical analysis of the internal consistency is required. One of the most commonly adopted tests for internal consistency is Cronbach's alpha (α), which is used to establish the reliability of scores (which is also a prerequisite for validity).

Table 5.7 shows the Cronbach's alpha (α) for the research constructs used in this study. The Cronbach's alpha was used to examine the internal consistency and the extent of co-variation among the items measuring each construct (Chew *et al.*, 2008). Although several authors have proposed that a minimum acceptable Cronbach's alpha value is 0.7, Nandakumar (2008) recommended that 0.6 could be considered acceptable in exploratory research such as the present study. In another research Van de Ven and Ferry (1979) asserted that a Cronbach alpha coefficient of 0.55 is acceptable for measuring broad constructs. From Table 5.7, it could be

seen that some of the variables such as organisational structure, technological, complexity and munificence measuring the dimensions of the environment had Cronbach's alpha values below the acceptable threshold. All the measures that did not have acceptable alpha values were subjected to a data reduction process using factor analysis before they were used for further analysis as recommended by Nandakumar, (2008). The process (factor analysis) is discussed under method of data analysis, while the data reduction is discussed in Chapter Six.

Table 5. 8: Reliability values of the scales

Questionnaire section	Measured Constructs	Alpha Value
Organisational characteristics	1. organisational structure	0.530
	2. Management style	0.750
	3. Decision-making style	0.680
Competitive strategies	1. Differentiation	0.940
	2. Cost-leadership	0.775
	3. Focus	0.842
Resources and Capabilities	1. Financial	0.580
	2. Human resources	0.690
	3.Technological	0.481
Business environment	1. Endogenous	0.766
	2. Exogenous	0.854
Dimensions of the environment	1. Dynamism	0.562
	2. Competitive intensity	0.554
	3. complexity	0.479
	4. Munificence	0.410
Organisational performance	1. Objective achievement	0.784
	2. competitor's effectiveness	0.834

5.9.2 Validity and reliability in qualitative research

The careful selection of multiple-case studies was used to address population validity. Internal validity was enhanced through the use of interviews and document analysis to explain observations. Critics of the case study approach contend that case study investigators often fail to develop a valid set of measures, and that subjective measures are used to collect data (Ntiyakunze, 2011). To eliminate this problem, several strategies of validation were used. These included using multiple sources of evidence (i.e. triangulation of results); testing of hypothesis stated in this study using theoretical replication logic in order to establish a chain of evidence and make analytical generalisation (Yin, 2009). Finally, to enhance the replicability

(and hence, reliability) of the study, a well-defined interview protocol was prepared, showing the questions and documents to be sought, respondents to be interviewed and archival data to be provided if requested.

5.10 Methods of data analysis

It is important for research to adopt appropriate techniques of data analysis in order to correctly handle the data collected from the field survey (Ankrah, 2007). Two streams of data were collected, the qualitative and quantitative data. Hence, this research could employ multiple analytical methods so as to improve the reliability and validity of the research results.

5.10.1 Quantitative analysis

In analysing the quantitative data, both descriptive and inferential statistical techniques were employed. The descriptive statistics (including percentiles, and mean scores) were used to analyse the background information of the respondents. The inferential statistics adopted included: Multiple Regression Analysis, Analysis of variance (ANOVA), factor analysis and cluster analysis. Partial Least Squares Structural Equation Modelling technique was also used to develop and validate the conceptual framework presented in Chapter 4.

5.10.1.1 Mean scores and indices

The questionnaire items required participants to respond on a series Likert items of 1 to 5. The mean score of each of the variables was determined to establish the significant factors in each of the constructs. The mean was used in analysing the opinions of respondents that could range between e.g. very high 5 points, very low 1 point. For example, an organisation that viewed that a certain factor of the business environment impacted significantly on organisational performance would indicate a very high mean score on that variable of the business environment, and indicate relatively medium to low on other factors. The mean score had been employed by many strategy researchers (e.g. Chew *et al*., 2008, Jusoh & Parnell, 2008; Yamin *et al*., 1999) and this was determined for each construct using the formula given below:

$$\text{Mean Score} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{n_5 + n_4 + n_3 + n_2 + n_1} \quad \text{.....} \quad 5.1$$

Where; n_1 = number of respondents who answered “very low impact”

n_2 = number of respondents who answered “low impact”

n_3 = number of respondents who answered “moderately low impact”

n_4= number of respondents who answered "high impact"

n_5= number of respondents who answered "very high impact"

In order to have a better understanding and in-depth knowledge of both the endogenous and exogenous factors used in identifying business environment factors, the respondents were asked to rank each of the factors on a Likert scale of 1-5 on "level of significance", where 1 was "very low" and 5 was "very high", and also on the "level of the impact" of the identified factors, where 1 was "very insignificant" and 5 was "very significant". This provided an opportunity of appraising the level of significance and the level of the impact of the identified factors, and also the "severity" of the variable on organisational performance, based on the cumulative score of the scales used.

$$\textit{Frequency Index} = \left(\frac{\sum(f)}{NF}\right) \textit{ x 100\%}\ldots\ldots\ldots\ldots \textit{ (i)}$$

$$\textit{Importance Index} = \left(\frac{\sum(i)}{NI}\right) \textit{ x 100 \%}\ldots\ldots\ldots\ldots\textit{(ii)}$$

$$\textit{Severity Index} = \left(\frac{\sum(if)}{NIF}\right) \textit{ x 100 \%}\ldots\ldots\ldots\ldots\ldots\textit{(iii)}$$

The formulae used to arrive at the severity index for each of the factors were adopted from Spillane, Oyedele and von Meding (2012). In the given equations, *i* represent the importance weighting and *f* depicts the frequency weighting assigned by the respondents in the questionnaire, based on a Likert scale rating from 1 to 5. I and F are the highest ratings possible for each of the assigned factors (in both cases being 5). N is the total number of respondents with usable data on that particular factor, which was72.

5.10.1.2 Cluster analysis

This is one of the most widely used multivariate methods for identifying groupings of organisations or objects that share similar characteristics (Cheng & Leu, 2009; David & Averbuch, 2012; Kale & Arditi, 2002; Tan *et al*., 2012). Ankrah (2007) argued that whenever a researcher has a huge amount of information to classify into more manageable categories, cluster analysis is a good technique to use. Kale and Arditi (2002) posited that cluster analysis is generally believed to be an aspect of exploratory data analysis rather than inferential statistics. The cluster analysis technique was employed to categorise construction organisations on the basis of their characteristics, strategic orientation and behaviour in deploying their competitive strategies to achieve superior performance. The aim of the analysis was to maximise the homogeneity of construction organisations within the cluster, while concurrently maximising the heterogeneity between clusters (Hair *et al*., 2010).

This study adopted the k-means cluster analysis procedures using an algorithm that allocates each value to the nearest cluster centroid, while reducing the squared error function (Kale and Arditi, 2002; Tan *et al*., 2012). The algorithm can either be hierarchical or non-hierarchical, but for the purpose of this research the non-hierarchical clustering method was used. Garson (2007) argues that data is best analysed with hierarchical clustering when the sample is less than 250. The technique uses squared Euclidean distance measures for calculating the distances between observations. Competitive strategies variables as well as organisational characteristics and resources that were used as input for the k-means cluster analysis were standardized (mean = 0 and standard deviation =1) to avoid the influence of possible bias due to variation of scales in determining the Euclidean measures among the cases (Hambrick 1983; Harrigan, 1985; Kim & Lim 1988). The main challenge facing researchers using this technique is to choose the most appropriate number of clusters (Ankrah, 2007; Kale & Arditi, 2002; Tan *et al*., 2012).

The ideal number of clusters is ascertained by checking whether there is a considerable increase or a decrease in the squared error of clusters as the algorithm used in the k-means moves from one cluster to the next (Kale & Arditi, 2002; Tan *et al*., 2012). In these studies the significance of adopting cluster analysis has been made apparent in providing understanding of competitive positioning and strategic behaviours of homogeneous groups of organisations.

5.10.1.3 Analysis of Variance (ANOVA)

ANOVA is a technique for testing whether two or more population means are significantly different, and is suitable for comparing the strategic attributes of different clusters (Ankrah, 2007). Hence, one-way ANOVA was used to compare means of the clusters. ANOVA relies on the F-test statistical method to test whether the means of the groups differ significantly (Fellows & Liu, 2008). This test was employed to investigate whether the means of performance and the generic strategies differed between the groups. The F-ratio is determined and this represents the ratio of variance between the groups by dividing it with the variance within the group. A higher F value depicts that there is more variability between the groups than within each group. A large F value may indicate that the null hypothesis (which states that the population group means are equal), should be rejected.

5.10.1.4 Correlation Analysis

The study also adopted correlational statistics to indicate the nature and pattern of relationships among the variables tested. This statistical tool assists in determining the strength of the association between two metric variables which can exhibit any of these relationships; positive, negative or no relationship (Hair *et al*., 2010). The correlation coefficient values can range from +1 to -1, with +1 indicating a perfect positive correlation relationship, 0 indicating no relationship and -1 indicating a perfect negative relationship. Correlation analysis is one of the most commonly used statistical tools by strategy researchers. Examples of studies that adopted this tool include Chew *et al*. (2008), Li and Ling (2012), Nandakumar *et al*. (2010, 2011) and Tavitiyaman, Zhang and Qu (2012). Statistical correlation has also been identified as an important step towards the development of regression model(s) (Hair *et al*., 2010). Correlational analysis was used to explore the nature of relationship among the research constructs.

5.10.1.5 Factor analysis

Hair *et al.* (2010) described factor analysis as a multivariate statistical method for investigating the underlying constructs, or the structure of interrelationships within a large number of variables. It does this by indicating which variables are highly correlated with one another, thereby forming clusters or sets of variables that are understood to relate to a shared, construct. There are two main methods for creating factors that characterise the structure of the variables in an analysis. These include: the Principal Component Analysis (PCA) and Factor Analysis (FA) (Field, 2013). These two methods aim to reduce a large set of variables into a smaller set of dimensions called 'factors' in factor analysis and 'components' in PCA.

DeCoster (1998) classified two approaches to factor analysis: confirmatory and exploratory factor analysis. Confirmatory factor analysis is a technique for testing a theorised dimension structured by evaluating how well assessed variables symbolise a smaller number of constructs. This is done by using Structural Equation Modelling (SEM). Exploratory factor analysis is carried out by bringing together underlying variables that are interrelated, thereby generating a factor structure through an inductive approach.

This approach has been used by strategy researchers such as Allen and Helms (2006) and Jusoh and Parnell (2008) to identify strategic attributes and to distinguish strategies used by organisations respectively. One of the main objectives of this study was to identify strategic

attributes that are consistent with particular generic strategies that will lead to superior performance. Factor analysis is used for reduction purposes, by obtaining a small set of uncorrelated variables from a large set of correlated variables and identifying those variables that converge or measure similar a factor. This makes the PCA method an appropriate technique for factor extraction, where the extracted components can be used to compute new variables for successive analyses.

There has been some debate in the literature about what constitutes the minimum size for factor analysis (Cattell, 1978; Comrey & Lee, 1992; Hair, Anderson, Tatham & Grablowsky, 1979; Mundfrom, Shaw & Ke, 2005; Tabachnick & Fidell, 2007). However, De Winter, Dodou and Wieringa (2009) after careful analysis of studies on small sample sizes for exploratory factor analysis, suggested a sample size of 50 as a reasonable and acceptable size for exploratory factor analysis. This is consistent with Hair *et al*. (2010), who suggested a sample size of 50 but with 0.75 factor loading as reasonable, and Field (2013) who contended that a sample size of less than 100 with commonality greater than 0.6 may be considered to be perfectly acceptable. The sample size in this study is between 70 and 80, which means that any factor loading smaller than .60 would not be statistically reliable. Only factor loadings larger than .60 were therefore considered when deciding which variables loaded onto which factors as illustrated in Table 5.8. The sample size for this study was 72, which is above the minimum 50 suggested (De Winter *et al*., 2009; Hair *et al*., 2010) as shown in Table 5.8. It was therefore considered reasonable to proceed with factor analysis.

Table 5. 9: Guidelines for identifying significant factor loadings based on sample size

Factor Loading	Sample Size Needed for Significance
.30	350
.35	250
.40	200
.45	150
.50	120
.55	100
.60	85
.65	70
.70	60
.75	50

Source: Hair *et al*. (2010: 117)

5.10.1.6 Multiple regression

Multiple regression analysis (MRA) explores the relationships between a dependent variable on the one hand and a set of independent variables on the other hand (Hair *et al.,* 2010). It is a method for examining the predictive powers and the magnitude of the effects of the independent variables on the dependent variable (Kerlinger & Lee, 2000; Pallant, 2007, 2010).

Wiersema and Bowen (2009) contended that regression analysis is the most prevalent statistical tool used by strategy researchers. For example, Goll and Rasheed (1997) used regression analysis to model the relationship between rational decision-making, organisational performance and environmental dimensions. Nandakumar *et al*. (2010) used moderated regression analysis to examine the moderating effect of environment and organisational structure on business-level strategy and performance. Also in construction management research, it is a commonly used multivariate technique. For instance, Kale and Arditi (2003) employed this method to test the idea, proposed by differentiation and neo-institutional scholars, that conformity to regulations is positively related to organisations' performance. Phua (2006) used a regression approach to predict the effects that the constraints imposed by organisations' resources and institutional inflexibility have on organisational performance. All these studies have aimed to explore and model the relationships between independent and dependent variables, an objective which obviously resonates with the aim of this study.

Hence, this study employed hierarchical and moderating MRA techniques to test the hypotheses and evaluate the resultant models. MRA is basically the derivation of a regression

analysis with two or more independent variables. This leads a researcher to deriving an equation where each predictor variable has its own coefficient and the dependent (outcome) variable is predicted from a combination of all the variables, multiplied by their corresponding coefficients, plus a residual term (Field, 2013). These coefficients denote the comparative contribution of the independent variables to the overall prediction of the model(s), and simplify the explanation as to the impact of each variable's predictive power (Hair *et al*., 2010). Multiple regression analysis allowed the present study to explore the influence of various aspects of competitive strategy (independent variables) on organisational performance (dependent variable).

There are three different methods of regression analysis, namely the hierarchical or sequential, forced entry, and stepwise methods (Field, 2013). This research adopted hierarchical regression because it enabled the researcher to control for additional variables when examining the predictive power of the model. This approach also takes into account the classification of predictors based on theoretical grounds. In this study, the existing literature provided strong evidence that certain variables could be expected to be strong predictors of business performance, hence the adoption of the hierarchical regression method.

Analysis of the data was conducted using Excel 2013 and IBM SPSS v21.

5.10.1.7 Partial Least Square Structural Equation Modelling (PLS-SEM)

This study used PLS-SEM to develop and validate the conceptual model presented in Chapter Four. Model validation is arguably the most important step in the process of model development. Within disciplines such as accounting, marketing, and more recently strategic management, researchers are increasingly called upon to validate theories and concepts empirically. This has led to increasing use of causal modelling methods, particularly Structural Equation Modelling (SEM) (Fernandes, 2012; Hulland, 1999; Hair, Sarstedt, Pieper & Ringle, 2012). Fornell (1982) described SEM as a second generation multivariate analysis approach that brings together attributes of the first generation methods, such as principal component and linear regression analysis. SEM allows researchers to test complete theories, concepts and complex models by estimating the composite relationships between variables (Chin, 2010; Robins, 2012).

SEM-based approaches to modelling can be covariance-based SEM (CBSEM) or variance-based partial least squares (PLS) path modelling, which is also called PLS-SEM (although the two approaches are from the same root) (Hair *et al*., 2012; Hair, Hult, Ringle & Sarstedt, 2013). CB-SEM is a confirmatory technique that focuses on the model's theoretical parameters to estimate relationships between variables. It aims at reducing the discrepancies between the sample covariance matrix and the model's implied covariance matrix (Hair, Ringle & Sarstedt, 2012). In contrast, PLS-SEM is a predictive approach which aims at expanding explained variance by focusing on the endogenous target constructs in the model (such as the R^2 value) (Hair *et al*., 2012).

Within the construction management literature, studies have used a range of statistical techniques such as regressions and structural equation modelling to validate models (e.g. Ankrah, 2007; Isik *et al*., 2010). This study employed PLS-SEM, as a multivariate technique that enables the researcher to explore a set of relationships between one or more predicator variables, either continuous or categorical and one or more outcome variables, either continuous or categorical. Robins (2012) asserted that PLS-SEM is particularly appropriate to studies in strategic management as it allows researchers to develop and refine concepts and theories. Since this research was on strategic management of organisations in the context of management of construction, transferring research ideas from other fields, such as strategic management, is plausible (Betts & Ofori, 1993; Dainty, 2008).

PLS-SEM is a prediction-oriented, variance-based multivariate technique that has flexible distributional assumptions of normality needed for maximum likelihood–based SEM estimations (Hair *et al*., 2012). PLS-SEM is based on a series of Ordinary Least Square regressions which (unlike SEM) can be employed for a smaller sample size while still achieving high levels of statistical predictive power (Nandakumar, 2008; Reinartz, Haenlein & Henseler. 2009). However, it is executed using a series of path or structural equations which estimate all the direct causal paths concurrently, and produces an overall goodness of fit measure for the model. PLS-SEM is not inhibited by concerns for identification which normally limits the adoption of CB-SEM, even if models become complex (Hair, Ringle & Sarstedt, 2011).

SmartPLS (Version 2.0 (M3)) application was used to evaluate PLS-SEM using the collected quantitative data. To start with, PLS-SEM was used to create the path model as shown in the conceptual in Chapter 4 (see Chapter 8 for details) that connects the indicators and the

constructs based on the theories and logics discussed in Chapter 4 (Hair *et al*., 2014). The model was developed with one exogenous or independent variables which are the business environment; and four endogenous or dependent variables, these are organisational characteristics, competitive strategies and organisational performance and organisational resources and capabilities. Exogenous variable are those whose variation is explained by factors outside the model and which also explains other variables within the model, while endogenous variable are those whose variation is explained by one or more variables within the model (Lleras, 2005). The study specified the outer model in a reflective way as suggested by Gudergan *et al*. (2008) and the reflective indicators were used in measuring the constructs.

The Environmental construct was measured by environmental dimensions (munificence, dynamism, complexity and competitive intensity, while resources and capabilities were measured reflectively with human resources, financial resources and technological resources. The indicators for organisational characteristics were the decision-making style, organisational structure and management style. The Strategies construct was estimated using the three generic strategies: differentiation, cost-leadership and focus strategy, while indicators of organisational performance were the measures of performance (objective achievement, competitor's effectiveness and ROCE). Since most of these indicators were measured using a number of items, a new index was calculated by summing the responses for each variable and estimating the mean. The computed variables were the reflective indicators for the constructs. A reflective indicator is a set of all possible items within the conceptual sphere of a construct and these indicators are related to a construct through factor loadings which show the bivariate correlation between the construct and the indicator (Hair Jr *et al*., 2014). The details of how the model was generated are presented in Chapter 8.

5.10.2 Qualitative data analysis

There are several techniques for analysing qualitative data. Madill and Gough (2008) categorise qualitative data analysis into four methods namely: discursive, thematic, structured, and instrumental. Content analysis has also been used, which Fellow and Liu (2008) suggest can either be qualitative, quantitative or structural, depending on the nature of the study. Yin (2009) supported and expanded the classification given by Madill and Gough (2008) by regrouping the techniques into five classes: pattern matching, explanation building, time-series analysis, logic models, and cross-case syntheses. Yin (2009) therefore, suggested if a research project

comprises multiple case studies then replication logic should be used to enhance its generalisability.

However, this study used thematic analysis using the explicitation approach proposed by Blaxter *et al*., (2006) which consists of five steps or phases which are: bracketing and phenomenological reduction; delineating units of meaning; clustering of units of meaning to form themes; summarising each interview, validating and where necessary modifying it; and extracting general and unique themes from all the interviews and finally making a composite summary. To safeguard against drawing premature conclusions, Microsoft Excel was used as a qualitative data analysis tool, as it assists with effective management of data. This spreadsheet application is capable of handling large amounts of data, helping the researcher to organise them in meaningful ways, providing multiple attributes, and allowing for a variety of display techniques (Meyer & Avery, 2009). Hence, each transcript was coded using Excel, each row defining a codable unit, and each column defining an attribute of that unit. The essence of coding is to provide an obvious interpretation of the issues to be derived from the interview (Blismas & Dainty, 2003), which this approach encouraged.

In analysing qualitative data, the researcher has to seek a balance between being engulfed in intricacy on the one hand, and being stuck by the tactical reduction of data on the other hand (Richard, 1999). Therefore, after initial coding and familiarisation with the data, the researcher explored further themes. The identified themes were then reviewed, described and named following Bowen, Edwards and Cattell, (2012). This coding formed the foundation for establishing the elements or constructs that impact on organisational performance and strategic management in large construction organisations.

5.11 Ethical considerations

In planning and conducting the study, the researcher carefully considered the ethical validity of the proposed procedures. Shah (2011) argued that ethics are commonly defined as norms for conduct that differentiate between acceptable and unacceptable conduct. The ethical considerations applied in this study were viewed as part of a system or perspective used in taking decisions on how the study was conducted. According to Jimoh (2012), adherence to ethical principles by researchers will add credibility to the study and its findings. To this end, the conduct of this study hinged on ethical considerations such as honesty, integrity, informed

consent, confidentiality, carefulness and right to privacy (Leedy & Ormrod, 2005; Resnik, 2007; Shah, 2011).

Therefore, at the beginning, the researcher ensured that the respondents were adequately informed of the specifics of the study. Their consent were sought and gained through a letter of invitations (see Appendix A) and several e-mails. The participants were given the option to discontinue or withdraw from the research at will. The study was designed in a way that kept the participants anonymous and maintained the confidentiality of any information provided. To guarantee this privacy and secrecy the identity of the organisations have not been made known. Only the researcher and supervisors had knowledge of the identities of the participants and their organisations.

5.12 Summary

This chapter has explained the methodological underpinnings of the research, and the various approaches used in obtaining and analysing data. The study adopted a mixed methods technique, collecting data through the use of a quantitative questionnaire for the quantitative strand and semi-structured interviews for the case study-based qualitative strand. The next chapter presents the results of the quantitative data analysis, as well as a discussion of these findings

CHAPTER 6
QUANTITATIVE DATA ANALYSIS AND DISCUSSION

6.1 Introduction

This chapter presents the data obtained through survey, and uses the findings to validate the conceptual model and test the research hypotheses stated in Chapter Four. The quantitative data were analysed using both descriptive and inferential statistical methods. This chapter first reports the descriptive statistics used to summarise the characteristics of the respondents and analyses the data used to measure the key research constructs. This included checks for possible violations of the assumptions underlying the inferential statistical methods to be used. Next, the chapter presents the results of the inferential tests in which the model and hypotheses were tested. Lastly the results are interpreted, discussed in the light of literature and previous studies findings, and the implications of the findings are highlighted.

6.2 General profile of the respondents

The survey respondents in this research were drawn from large construction organisations registered in Grade 7 to 9 on the cidb register of contractors and based in Gauteng, Kwazulu Natal and the Western Cape provinces of South Africa. Hence, the construction organisations form the unit of analysis for the study.

6.2.1 Respondent profile

The data presented in Table 6.1, show that 55 (76%) of the organisations that participated in the research had been in construction business for over ten years, while only 17 (22%) had less than ten years' experience. The majority of respondents' organisations thus possessed considerable experience in the construction industry. This was advantageous for the study because it would improve the validity or reliability of data and subsequent findings. As indicated in Table 6.1, a large majority (71%) of the organisations participated in the study had more than 100 full time employees. Table 6.1 also shows the grades of the organisations that responded to the survey. Out of the organisations considered, 49% were grade 7 contractors; 23% were in grade 8; while contractors in grade 9 represented 28% of the total respondents. This indicates that grade 7 construction organisations participated more than those in grades 8 and 9. Table 6.1 indicates the class of work in which the organisations were engaged. Twenty-

seven (37%) were in general building works only; 20(28%) in civil engineering construction works only; while 25 (35%) executed both civil engineering and general building works.

Table 6. 1: Demography of respondents' organisations

	Frequency	Valid percent	Cumulative percent
Years in business			
1-5yrs	1	1	1
6-10yrs	16	22	23
11-20yrs	20	28.8	51
21-30	14	19	70
> 30	21	29.2	100
Number of employees			
0-99	20	28	28
100-199	31	43	71
500 and above	21	29	100
Grades of work			
7	35	49	49
8	17	23	72
9	20	28	100
Class of work			
General building works (GB)	27	37	37
Civil engineering work (CE)	20	28	65
General building and civil engineering works	25	35	100

6.3 Assessment of research constructs

This section presents and analyses the survey data measuring the key constructs of the study. In assessing the constructs used in the survey, the research first employed analytical descriptive statistics. These were used to represent the data in terms of central tendencies (through the mode, median and mean), as well as dispersion (through the standard deviation).

These measures were used to generate a systematic understanding of the type of data and give a synopsis of the organisations used as sample. The constructs were assessed individually, and the findings are highlighted and discussed below.

6.3.1 Competitive strategy

Table 6.2 shows the descriptive statistics and frequencies of responses for competitive strategies. The most frequently used differentiation strategy was that of achieving high quality

beyond the requirements in the specifications (see Kale & Arditi, 2002). Although, this may contradict the desire to produce competitive prices and finding ways to reduce cost, Kale and Arditi (2003) argued this method of differentiation can be used by construction organisations to gain competitive advantage. Being highly responsive to clients' requests was used the least often. This is consistent with Kale and Arditi's (2002) findings, that organisations can confront intensely competitive construction environments by offering high quality services/products, among other factors. For cost-leadership strategy, the means show that the emphasis was on offering competitive prices, followed by finding ways to reduce costs. This is a truism in the construction industry where construction tenders are won by the lowest responsive cost bidder (Betts & Ofori, 1992; Price, 2003). Nonetheless, a focus strategy requires organisations to pay attention to the uniqueness of their products, and to target a clearly identified segment or customer, either public or private. This was argued by Dikmen and Birgonul (2003) to be an effective strategy in the construction sector to gain competitive advantage in a specific market niche, as it leads to the establishment of long term relationships with clients, building trust.

Table 6.2 shows that 49% of all the respondents gave their highest scores to achieving high quality in construction, and the introduction of innovative financing systems as a way of differentiating themselves from industrial rivals. These views are supported by Hillebrandt and Cannon (1989), Price *et al*. (2003) and Price (2003) who suggested that organisations tilt towards procuring projects based on best value and this may be achieved by pursuing differentiation strategies such as design and build, construction management, etc. Respondents also attached high importance to emphasis on tight control of selling/general/ administrative expenses as a way to achieve cost-leadership in the face of increasing demand for quality and value for money by clients (Dikmen & Birgonul, 2003; Price *et al*., 2003). Targeting a clearly identified segment of the market as well as offering products suitable for a high price segment was still the most frequently used focus strategy with 75% frequency of response.

Table 6. 2: Descriptive statistics and frequencies of response for competitive strategies

Coding	*Variables for competitive strategies*	Frequency % (1= very low 5= very high)					Mean response	Std. Deviation	Rank
		1	2	3	4	5			
Diff 1	Achieving high quality in the constructed facility	0	0	18.1	48.6	33.3	4.15	.70	2
Diff 2	Achieving high quality beyond the requirements in the specifications	0	1.4	16.7	45.8	36.1	4.17	.75	1
Diff 3	Being highly responsive to clients' requests	0	1.4	23.6	44.4	30.6	4.04	.78	6
Diff 4	Achieving on schedule performance in construction operations	0	4.2	18.1	37.5	40.3	4.14	.86	3
Diff 5	Attempting to deliver constructed facilities ahead of schedule	1.4	1.4	22.2	34.7	40.3	4.11	.90	4
Diff 6	Introducing innovative financing methods	0	1.4	19.4	48.6	30.6	4.08	.75	5
	B. Cost-leadership strategy								
Costlead1	Emphasis on production capacity utilization	0	1.4	29.2	34.7	34.7	4.03	.84	3
Costlead2	Emphasis on operating efficiency (e.g. productivity in production or efficiency in outbound logistics)	0	2.8	23.6	37.5	36.1	4.07	.84	5
Costlead3	Emphasis on finding ways to reduce costs (e.g. standardising the product or increasing the economy of scale)	0	2.8	19.4	36.1	41.7	4.167	.84	2
Costlead4	Emphasis on efficiency of securing raw materials or components (e.g. bargaining down the purchase price)	1.4	2.8	15.3	52.8	27.8	4.03	.82	3
Costlead5	Emphasis on tight control of selling/general/ administrative expenses	0	4.2	23.6	38.9	33.3	4.01	.86	6
Costlead6	Emphasis on price competition (i.e. offering competitive prices)	0		18.1	36.1	45.8	4.28	.75	1
	C. Focus strategy								
Focus 1	Targeting a clearly identified segment (e.g. emphasising a provincial region or a specific group of consumers)	0	1.4	23.6	40.3	34.7	4.08	.80	2
Focus 2	Offering specialty products tailored to a particular group of customers or users	0	1.4	30.6	34.7	33.3	4.00	.84	3
Focus 3	Uniqueness of your products (e.g. unique function or design	0	0	25.0	38.9	36.1	4.11	.78	1
Focus 4	Offering products suitable for a high price segment	1.4	2.8	33.3	23.6	38.9	3.96	.98	4

6.3.2 Organisational characteristics

The constructs were analysed using descriptive statistics, and the results are presented in Table 6.3. Analytical decision-making style was rated highest as indicated by the mean value (4.25) followed by directive style (mean value = 4.07), while behavioural style shows the lowest mean. Regarding management style, the results also show that some of the respondents acknowledged that , performance tends to improve when management recognises and rewards efficiency, excellence, openness, social skill and contribution to decisions (mean = 4.06; Frequency= 45.8%). This was followed by management's ability to make decisions in the best interests of employees with a mean value of 3.9. However, the view that performance suffers when goals are set by the management for employees to attain was ranked least. Different decision-making and management styles work well under different organisational structures (e.g. Homburg & Furst, 2005); as a result some of the respondents indicated the greatest impact for a centralised structure where management controls how individual employee works or activities are defined. This is in line with the findings of Phan (2000), who contended that centralised strategic guidance by top leaders of an organisation yields higher performance than a decentralised structure. Nonetheless, half of the respondents considered that continuous integration and coordination of individual employee activities, and aligning them to the company's strategies, was linked to higher organisational performance (Freq. = 50%) as shown in Table 6.3.

Table 6. 3: Descriptive statistics and frequencies of response organisational characteristics

Coding	*Variables for organisational characteristics*	Frequency % (1= very low 5= very high)					Mean response	Std. Deviation	Rank
		1	2	3	4	5			
	A. Decision-making styles								
DMS1	Managers encourage employees to focus on the key techniques, show independence and initiative in solving problem (directive)	0	2.8	16.7	51.4	29.2	4.07	.76	2
DMS2	Management encourage analytic ideas and welcome alternative approach to problem solving (analytical)	0	1.4	13.9	43.1	41.7	4.25	.75	1
DMS3	Managers strengthen creative and encourages independent action (conceptual)	0	5.6	22.2	47.2	25	3.92	.83	3
DMS4	Managers are aware of socio-cultural attitudes of the employee & they are being guided towards meaningful problem solving strategies to create enabling environment (Behavioural)	2.8	4.2	20.8	52.8	19.4	3.82	.89	4
	B. Management style								
MGS1	Management make decisions in the best interest of employee after consultation	1.4	7.1	21.4	40.0	30.0	3.90	.96	2
MGS2	Employees & Managers present ideas, ask questions, listen, and provide feedback.	0	8.3	36.1	40.3	15.3	3.62	.85	5
MGS3	Managers facilitate two-way communication, give room for employees to heard and provide feedback during meeting	1.4	6.9	26.4	36.1	29.2	3.85	.97	3
MGS4	Management recognises & rewards efficiency, excellence, openness, social skill and contribution to decisions	0	9.7	9.7	45.8	34.7	4.05	.92	1
MGS5	Managers usually specify types of monitoring vehicle & require timely feedback, specify to their demand	1.4	6.9	29.2	38.9	23.6	3.76	.94	4
MGS6	Employees tend to be more committed to goals when they are set by the management	2.8	4.2	38.9	37.5	16.7	3.61	.91	6
	C. Organisational structure								
ORS1	Management controls how individual employee works or activities are spelt out	1.4	1.4	25.0	43.1	29.2	3.97	.85	1
ORS2	Managers ensure integration & coordination of individual employee activities and align them to company's strategies	0	4.2	22.2	50.0	23.6	3.93	.79	2
ORS3	Management channel organisations system to maintain healthy relationship with business environment	2.8	2.8	23.6	48.6	22.2	3.85	.90	4
ORS4	The nature of the organisational structure encourages improved strategy and delegation of authority	0	5.6	20.8	50.0	23.6	3.92	.82	3

6.3.3 Resources and Capability

Resources and capability were measured using three constructs: financial resources, human resources and technology. Table 6.4 shows the results which show that the ability to secure loans was rated highest (mean= 4.17) by the respondents as a means of improving the capability of organisations, while equity (selling part of the company) was rated lowest (3.96). However, the frequency of responses show that ability to secure a surety bond or insurance policy was considered the most significant factor influencing performance (41.7%).

With respect to human resources, continuous professional development was considered to be the most influential factor (4.07), while improvement of relationships with employee trade unions received the lowest rating (3.94). This is most probably because many of the respondents were either Chief Executive Officers (CEOs) or Directors. In their view, giving powers to trade unions may compromise their outputs, and too much familiarisation may lead to contempt on the part of the employees. Instead leaders of organisations preferred to create an enabling working environment that will reduce absenteeism and turnover (Freq. = 38.9%).

In terms of technology, managers generally agreed that organisations become more efficient and productive when new technologies are integrated into business systems and process (as shown by the mean score of 4.26). Creating an enabling work environment that encourages creativity and innovation was also perceived to impact on the organisations, as shown by the frequencies of responses (47.2%)

Table 6. 4: Descriptive statistics and frequencies of response for organisational resources and capabilities

Coding	*Variables for organisational resources & capabilities*	Frequency % (1= very low 5= very high)					Mean response	Std. Deviation	Rank
		1	2	3	4	5			
	A. Financial								
FS1	Ability to use company's own fund/finance to finance construction works	1.4	2.8	26.4	33.3	36.1	4.00	.93	3
FS2	Ability to get equity-selling part of the company	2.8	2.8	23.6	37.5	33.3	3.96	.97	4
FS3	Ability to secure debt or loan to fund expansion, improve profit ratio and improve cash-on-cash returns	0	1.4	20.8	37.5	40.3	4.17	.80	1
FS4	Ability to secure surety bond or insurance policy	0	2.8	18.1	41.7	37.5	4.14	.81	2
	B. Human resources								
HR1	Strengthen the procedures for recruitment, training & promoting all levels of employees	1.4	2.8	25.0	40.3	30.6	3.96	.89	5
HR2	Enhance reward & recognition program for motivating and challenging employees	0	2.8	27.8	31.9	37.5	4.04	.88	3
HR3	Development of organisation capabilities through participation of top managers & technical personnel in professional development	0	1.4	29.2	30.6	38.9	4.07	.86	1
HR4	Create enabling working environment that reduces absenteeism and maintain considerable level of employees' turnover	0	2.8	27.8	30.6	38.9	4.06	.89	2
HR5	Manage talent & enhance staff knowledge and skill in strategic areas	0		1.4	31.9	33.3	3.99	.847	4
HR6	Improve relationship with employee/trade union	1.4	5.6	26.4	30.6	36.1	3.94	.99	6
	C. Technological								
TC1	Company assessment of technological opportunities and threat is effective	1.4	1.4	27.8	37.5	31.9	3.97	.89	4
TC2	Company R& D in technological activities are well organised to ensure allocation of resources efficiently	1.4	8.3	25.0	27.8	37.5	3.92	1.05	5
TC3	Creation of work environment that encourages creativity and innovation	0	1.4	19.4	38.9	40.3	4.18	.79	2
TC4	Technology play a key role in firms business as well as quality of equipment	0	1.4	27.8	40.3	30.6	4.00	.80	3
TC5	Company is efficient in integrating new technology into business system and process	0	0	20.8	31.9	47.2	4.26	.79	1

6.3.4 Dimensions of the Business Environment

As Table 6.5 shows, many of the respondents rank dimensions of the environment from low to very high. The mean value (3.9) for the dynamic nature of the environment indicates that many of the respondents perceived their business/marketing environment as rapidly changing. This dynamism is linked to the degree of unpredictability of industry forces, which are beyond the control of specific businesses (Baum & Wally, 2003; Dess & Beard, 1984). Approximately 53% of the respondents acknowledged that the construction industry environment is competitive; they were thus aware that their organisation had relatively strong competitors. As we can see in Table 6.5, 69.4% of respondents agreed that having adequate knowledge of client requirements or customer needs is important for developing competitive advantage. This finding is in harmony with the elements of complexity identified by Aldrich (1979) and Mintzberg (1979), which included market diversity, knowledge intricacies, and information processing requirements.

With respect to munificence, the mean value (4.22) shows that a large number of respondents perceived that there was potential for high demand growth for construction work in the market, and no shortage of necessary resources (F = 48.6%). The anticipated growth in construction may be as a result of government concerns for the sector, and the state's intention to invest in 18 strategic infrastructure projects estimated to be worth R4-trillion over 15 years (Riaz, 2012). These perceptions were in tune with the definition of munificence given by Kabadayi *et al*. (2007), which considers munificence as the degree to which an environment can offer sufficient resources to organisations that operate in it. However, the lack of entry barriers that characterises the South African construction industry (cidb, 2012) implies that unless the construction market grows faster, the rate at which new organisations enter will lead to scarcity of resources, and individual organisations' performance will dwindle.

Table 6. 5: Descriptive statistics and frequencies of response for dimensions of the environment

Coding	*Variables for dimensions of the environment*	Frequency % (1= very low 5= very high)							
		1	2	3	4	5	Mean response	Std. Deviation	Rank
Dynam1	The marketing environment faced by our firm is rapidly changing	0	0	36.1	37.5	26.4	3.90	.79	1
Dynam2	Customers constantly have new requirement of products and services	0	6.9	26.4	43.1	23.6	3.83	.87	2
Dynam3	The industry environment our firm operates is fragmented and changes without stop	0	5.6	36.1	37.5	20.8	3.74	.85	3
Dynam4	Customers' requirements of amount of products/services and delivery time	0	5.6	48.6	20.8	25.0	3.65	.92	4
	B. Competitive intensity								
Competi1	Competition in our local market is intense	0	4.2	15.3	51.4	29.2	4.05	.78	4
Competi2	Our firm has relatively strong competitors	0	1.4	16.7	45.8	36.1	4.17	.75	1
Competi3	Our firm is in a highly competitive market	0	1.4	15.3	52.8	30.6	4.12	.71	3
Competi4	Price competition is a hallmark of our local market	0	4.2	30.6	26.4	38.9	4.00	.93	5
Competi5	Emphasis on producing to the customers' quality requirement	2.8	1.4	27.8	38.9	29.2	3.90	.94	6
Competi6	Importance of unreliable supplier quality	1.4	4.2	12.7	42.3	39.4	4.14	.90	2
	C. Environmental complexity								
Complex1	The complexity of knowledge required to meet customer needs	0	2.8	27.8	34.7	34.7	4.01	.86	2
Complex2	The degree of segmentation within major end user markets	0	2.8	25.0	38.9	33.3	4.03	.84	1
Complex3	The complexity of effectively managing the supply chain	0	8.3	25.0	38.9	27.8	3.86	.92	3
	D. Munificence								
Munif1	The demand for our product in our current market is strong and growing	0	4.2	25.0	38.9	31.9	3.99	.86	4
Munif2	There is a potential for high demand growth in our market	0	1.4	20.8	31.9	45.8	4.22	.83	1
Munif3	There is an abundance of resources (i.e., financial, supplies, human resources, etc.) in our market to companies to support growth potential.	0	0	20.8	45.8	33.3	4.12	.73	3
Munif4	There is no shortage of necessary resources in our market	0	2.8	25.0	23.6	48.6	4.18	.91	2

6.3.5 Business environment

Perceptions of the business environment were measured by asking participants to rate the severity of the impact of a number of features of the business environment. These fell into two categories: exogenous factors (factors outside the boundaries of the organisation) and endogenous factors (factors within the boundaries of the organisation). From the mean scores and frequencies of responses shown in Table 6.6, it was found that six exogenous factors exhibit high severity indices ranging from 0.78 to 0.89, with mean values also ranging from 3.90 to 4.26. These are: Corruption and lack of transparency, demand for construction, prolonged negotiation period prior to award, technological impact, intense rivalry between organisations, political instability.

These perceptions are consistent with previous findings. For example Bowen *et al*. (2007) acknowledged that bribery and unfair tendering practices pose problems in the South African construction industry. In addition to these ethical violations, well-intentioned government interventions have also created challenges in the industry. Over 30 Acts relating to the construction industry have been enacted since 1994 to counteract the inequality of the past and give preference to black-owned organisations, especially in procuring projects (cidb, 2004). These have significant impacts on organisational survival and performance by providing an unlevelled playground for organisations through preferential procurement.

Table 6.6 also shows the endogenous factors that were perceived to have a significant impact on organisational performance. Based on the ranking of the variables by the respondents, the first six highest ranked factors are: leadership style (Mean=4.17SI=0.83); management strategy (Mean=4.04, SI=0.81); business competition law (Mean=4.00, SI=0.80); Career path for employees (Mean=3.97, SI=0.0.79); Team spirit among employees(Mean=3.90, SI=0.0.78); and Poor financial status (Mean=3.83, SI=0.78).

Table 6. 6: Frequencies of response, means and significance index for business environment

		Frequency								
Coding	***Variables for business environment***	**1**	**2**	**3**	**4**	**5**	**Mean response**	**Std. Deviation**	**SI**	**Rank**
	A. Exogenous factors									
EX14	Corruption and lack of transparency	4.2	2.8	23.6	58.3	11.1	4.26	1.17	0.89	1
EX19	Demand for construction	0	1.4	13.9	41.7	43.1	4.25	.80	0.85	2
EX18	Prolonged negotiation period prior to award	0	4.2	15.3	40.3	40.3	4.17	.84	0.83	3
EX6	Technological impact	4.2	1.4	16.7	36.1	41.7	4.10	1.01	0.82	4
EX17	Intense rivalry between organisations	0	2.8	19.4	50.0	27.8	4.03	.77	0.81	5
EX2	Political instability	6.9	2.8	18.1	26.4	45.8	4.01	1.18	0.80	6
EX3	Fiscal policy	0	16.7	5.6	37.5	40.3	4.01	1.07	0.80	6
EX20	Cancellation of tenders	2.8	2.8	20.8	40.3	33.3	3.99	.96	0.80	8
EX1	Procurement act & legislation	0	5.6	20.8	45.8	27.8	3.90	.99	0.78	9
EX13	Change in tax regulation & policy	4.2	8.3	11.1	51.4	25.0	3.85	1.03	0.77	10
EX9	Interest rate instability	5.6	8.3	12.5	44.4	29.2	3.83	1.11	0.77	11
EX12	Industrial & Trade policy	6.9	2.8	8.3	20.8	61.1	3.69	.87	0.74	12
EX4	Employment pattern & attitude to work	0	22.2	16.7	33.3	27.8	3.67	1.11	0.73	13
EX10	Exchange rate fluctuation	0	22.2	22.2	23.6	31.9	3.65	1.15	0.73	14
EX7	Strong political opposition/hostility	4.2	13.9	18.1	47.2	16.7	3.58	1.06	0.72	15
EX8	Inconsistencies in government policies and laws	11.1	18.1	5.6	34.7	30.6	3.55	1.38	0.71	16
EX11	Legislation change/inconsistencies	6.9	6.9	27.8	40.3	18.1	3.55	1.09	0.71	16
EX5	Health and safety issues	12.5	2.8	37.5	16.7	30.6	3.50	1.30	0.70	18
EX16	Environmental issues & legislation	6.9	22.2	23.6	31.9	15.3	3.26	1.17	0.65	19
EX15	Socio-Cultural differences between main stakeholders	2.8	20.8	34.7	36.1	5.6	3.21	.93	0.64	20
	B. Endogenous factors									
EN13	Leadership style	1.4	5.6	9.9	40.8	42.3	4.17	.92	0.83	1
EN12	Management strategy	1.4	2.8	12.5	56.9	26.4	4.04	.79	0.81	2
EN1	Business Competition law	0	4.2	22.2	43.1	30.6	4.00	.84	0.80	3
EN9	Career path for employees	2.8	6.9	16.7	37.5	36.1	3.97	1.03	0.79	4
EN11	Team spirit among employees	1.4	8.3	16.7	45.8	27.8	3.90	.95	0.78	5
EN6	Poor financial status	4.2	9.9	14.1	42.3	29.6	3.83	1.09	0.77	6
EN7	High finance cost of projects	6.9	4.2	19.4	36.1	33.3	3.85	1.15	0.77	6
EN3	Lack of government guarantees	2.8	2.8	38.9	26.4	29.2	3.76	.1.00	0.75	8
EN14	Manpower problem associated with trade unions	6.9	13.9	20.8	18.1	40.3	3.71	1.31	0.74	9
EN2	Mission & Vision of the organisation	4.2	4.2	29.2	45.8	16.7	3.67	.95	0.73	10
EN5	Compliance with cidb rules	5.6	8.3	29.2	33.3	23.6	3.61	1.11	0.72	11
EN4	High bidding costs	1.4	9.7	29.2	54.2	5.6	3.53	.80	0.71	12
EN8	Lack of creditworthiness	18.1	5.6	22.2	43.1	11.1	3.24	1.27	0.65	13
EN10	Bankruptcy of firm’	15.3	12.5	26.4	30.6	15.3	3.180	1.28	0.64	14

6.3.6 Performance measures

Organisational performance was measured using objective measures (financial data), quasi-objective measures, and the subjective measures. The measures used have been validated in previous studies such as those by Dess and Beard (1984), Basioni *et al*., 2008, Kale and Arditi (2003), Phua (2006), and Nandakumar *et al*. (2010).

6.3.6.1 Achievement of objectives

Achievement of organisational objectives was assessed using subjective measures of performance. The variables employed were adapted from Nandakumar *et al*. (2010). Six variables were selected to measure how organisations achieve their stated objectives. Table 6.7 indicates that respondents considered the ability of an organisation to resolve problem as the most significant criterion for attaining objectives (mean= 4.33, F= 52%). This is consistent with Zenger and Folkman's (2002) finding that problem-solving (decision-making style) was associated with organisational effectiveness. The findings support Cox and Blake's (1991) problem-solving argument, which was that organisations arrive at better decisions through the in-depth evaluation inherent in heterogeneous problem solving clusters. Improvement in long-term performance of the organisation was rated second (mean=4.24) while predicting the organisation's future was rated the lowest.

Table 6. 7: Descriptive statistics and frequencies of responses for Objective achievement

		Frequency (1= V. unsuccessful 5= V. successful							
Coding	**Variables**	**1**	**2**	**3**	**4**	**5**	**Mean response**	Std. Dev.	Rank
OPL1	improvement in long-term performance	0	1.4	15.3	41.7	41.7	4.241	.76	2
OPL2	Predicting organisation's future growth	0	1.4	25.0	40.3	33.3	4.05	.80	6
OPL3	Evaluate alternative based on relevant information	0	0	25.0	40.3	34.7	4.10	.77	4
OPL4	Preventing problem areas	0	1.4	23.6	34.7	40.3	4.14	.83	3
OPL5	Resolving problems	0	0	19.4	27.8	52.8	4.33	.79	1
OPL6	Promoting management development	0	0	27.8	36.1	36.1	4.08	.80	5

6.3.6.2 Competitor's effectiveness

Table 6.8 shows that profitability was ranked the highest measure of performance through competitor's effectiveness with a mean value of 4.35, followed by productivity (4.26) and financial management (4.25). This finding is supported by Phua (2006), who contended that measuring organisational performance in terms of economic profitability has the advantage of reducing measurement ambiguity. This is also in line with established research standards that use profitability as a proxy for organisational performance (e.g. McGahan & Porter, 1997).

However, customer satisfaction had the highest frequency (58.9%). This means that nearly 60% agreed that customer satisfaction has a significant impact on their organisation's performance. It has been suggested that in construction, customer satisfaction is more a marketing tool than a key measure of performance (Thomas *et al*., 2002); but Ngowi (2000), and Love, Edwards and Sohal (2004), argued that if the value (customer satisfaction) is sustained and applied effectively, it does impact positively on organisational performance.

Table 6. 8: Frequency of responses and means for competitor's effectiveness

		Frequency (1=V. insignificant 5= V. significant							
Coding	***Variables***	***1***	***2***	***3***	***4***	***5***	***Mean response***	Std. Deviation	Rank
CPAN1	Return on Investment	1.4	4.2	18.1	41.7	34.7	4.04	.91	9
CPAN2	Productivity		5.5	11.0	35.6	47.9	4.26	.87	2
CPAN3	Profitability		1.4	9.9	40.8	47.9	4.35	.72	1
CPAN4	People management/development	2.7	6.8	16.4	37.0	37.0	3.99	1.03	10
CPAN5	Employee turnover/growth			21.9	46.6	31.5	4.09	.73	6
CPAN6	Financial ratios	1.4	2.7	9.6	42.5	43.8	4.25	.85	3
CPAN7	Capability		4.1	13.7	43.8	38.4	4.16	.82	5
CPAN8	Competent workforce	2.7	1.4	13.7	39.7	42.5	4.18	.92	4
CPAN9	Growth in contract awards	4.1	2.7	4.1	58.9	30.1	4.08	.91	7
CPAN10	Market growth		2.8	25.0	34.7	37.5	4.07	.86	8

6.4 Identifying the underlying dimensions

An important component of the research was to identify the underlying structure of the initial competitive strategy and organisational characteristics variables, and establish the specific organisational characteristics and strategic attributes that are empirically associated with different generic strategies in achieving superior organisational performance. Factor analysis was thus performed as the second step in the data analysis, after the descriptive statistics had been calculated. The factor analysis was undertaken to investigate the content structure and map unknown concepts and domains, and to reduce or classify the variables used for the constructs in preparation for further analysis. It was also employed to illustrate causal relationships, transform and screen data to draw inferences, and examine the convergent validity of the constructs (Isik *et al.*, 2010).

6.4.1 Identifying the strategic attributes of competitive strategy

To test the appropriateness of the data on strategies for further analysis, the Kaiser-Meyer-Olkin measure of sampling adequacy (MSA) and Bartlett test of sphericity were conducted for the three constructs as shown in Table 6.9. These two tests provide the minimum standard that the data should meet to be considered adequate for further analysis. The value of the KMO can vary between 0 and 1, with .50 suggested as a minimum (Field, 2013; Hair *et al*. 2010). The Bartlett test indicates whether the correlation matrix is significantly different from the identity matrix (i.e. matrix in which all of the diagonal elements are 1 and other elements are 0). The Bartlett test indicates the strength of the relationship among variables and the significant level of the Bartlett's test is a requirement for the data to be considered suitable for analysis (Field, 2013).

Table 6. 9: Tests of the appropriateness of strategies data for factor analysis

Variables	KMO Measures of Sampling Adequacy	Bartlett's Test of Sphericity
Differentiation	0.602	Significant
Cost-leadership	0.592	Significant
Focus	0.701	Significant

Pallant (2010) asserted that after the data has been found to be appropriate for factor analysis, the next step is factor extraction, which is the process of identifying potential factors or components within the data, and deciding how many of these to retain (Field, 2013). This involves determining the variables that strongly load on the components (indicating that such variables measure the construct). The most commonly used method of extracting the factors is the principal component extraction method, using factor rotation to discriminate between factors or indicate the specific number of basic dimensions among the components.

Quite a number of procedures have been identified to help in deciding how many factors to keep (Courtney, 2013; Field, 2013; Pallant, 2010). The scree plot approach is commonly used; however, Stevens (2002) asserted that a scree plot is only valid with a sample of more than 200 observations. Since this study had a sample of 72, Kaiser's criterion using the Eigenvalue technique was employed as well as a 0.65 threshold as proposed by Hair *et al*., 2010, for 70 observations. In this method the significant factors are those with an Eigenvalue equal to or greater than 1. Afterwards, the factor loading and the commonalities (h^2) of the determinants of the variables loaded are assessed (Field, 2013; Hair *et al.,* 2010).

To sum up, this thesis adopted the PCA approach using varimax rotation to extract possible factors, and Kaiser's criterion (i.e. Eigenvalue-greater-than-one) to determine which factors to retain for analysis. Table 6.10 shows that two factors having initial Eigenvalues greater than 1 were extracted from the variables used in measuring differentiation strategy. The Table shows that the first factor is capable of explaining 32% of the variation, while the second extracted component explains 29%. The two components combine to explain of 61% of the total variance. Each of the factors had two variables loaded on them after being rotated using varimax method. The rotation was carried out repeatedly to eliminate complex variables and ensure that variables were loaded onto only one factor (Field, 2013). This result is in line with Miller's (1991) findings where differentiation strategy was operationalised using two concepts; innovative and marketing differentiation.

Table 6. 10: Rotated Component Matrix for Differentiation Strategy

	Component	
Differentiation strategy (items)	1	2
Achieving on-schedule performance in construction operations	0,795	
Attempting to deliver constructed facilities ahead of schedule	0,782	
Achieving high quality beyond the requirements in the specifications		0,766
Being highly response to client's request		0,751
Total	1,271	1,155
% of Variance	32	29
Cumulative %	32	61

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

With respect to the items relating to a cost-leadership strategy, Table 6.11 shows that two factors with Eigenvalues greater than 1 emerged. Four items loaded on these two factors and 72% of the cumulative variance was accounted for by these two factors.

Table 6. 11: Rotated Component Matrix for Cost-leadership strategy

	Component	
Cost-leadership variables (items)	1	2
Emphasis on tight control of selling/general/administrative expenses	0,906	
Emphasis on price Competition (i.e. offering competitive price)	0,852	
Emphasis on efficiency of securing raw materials (bargaining down the purchase price		0,825
Emphasis on operating efficiency		0,737
Total	1,69	1,187
% of Variance	42	30
Cumulative %	429	72

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

With respect to focus strategy, only one component was extracted, explaining 58% of the total variance. As indicated in Table 6.12, the factor loadings on the component range from 0.63 to 0.872. This illustrates convergent validity where all the loadings exceed a threshold of 0.65 recommended by Hair *et al*. (2010).

Table 6. 12: Component Matrix for Focus strategy

	Component
Focus strategy (items)	1
Uniqueness of product (unique function or design)	0,872
Offering specialty products tailored to a particular group of customers or users	0,837
Targeting a clearly identified segment (i.e. focusing a provincial region or specific group of customers)	0,692
Offering products suitable for a high price segment	0,63
Total	2,336
% of Variance	58
Cumulative %	58

Extraction Method: Principal Component Analysis.
1 component extracted.

6.4.1.1 Factor rotation and discussion of the results of competitive strategy

One of the objectives of this research was to identify specific strategic attributes that are strongly linked with each competitive strategy. The variables that converged on Factor 1 for differentiation strategy represent on-schedule attributes as one way for the organisation to stand out among its competitors, while Factor 2 could be regarded as quality attributes. Factor 1 for cost-leadership strategy represents low-cost attributes and Factor 2 represents innovative attributes. Finally, the four variables that clustered on the same factor for focus strategy represent market segmentation attribute.

The research identified some strategic behaviour that would enhance the competitive strategies of construction organisations. Strategic behaviours aimed at increasing returns on investment and satisfaction of stakeholders (Tan *et al*., 2012) was identified, based on the variables clustered on each of the factors used in the constructs. The factors related to differentiation strategy refer to on-schedule attributes and quality attributes. These clusters suggest that in a highly competitive environment, construction organisations can enjoy superior performance and sustained competitive advantage by differentiation. This is aligned to the findings of Porter (1980; 1985). Construction organisation can make them stand out from their competitors through speedy operations that improve project delivery, while not compromising quality and safety (Kale & Arditi, 2003). The sophistication of the construction industry has increased the level of awareness of industry clients, and they demand prompt delivery of construction

projects (Gunhan & Arditi, 2005). Differentiation on this basis creates an avenue for construction organisations to emphasize their on-schedule attributes to win more contracts than their rivals.

Differentiating on the basis of quality allows organisation to place a premium price on products and achieve high profitability. Quality differentiation may entail contracting arrangements such as design-and-build, process innovation, or contracting services such as facility management or construction management (Price & Newson, 2003). Kale and Arditi (2003) asserted that if an organisation differentiates itself to meet client's requirement through effective communication with project participants in a productive and efficient manner, this can impact positively on the quality of the final product.

Cost-leadership strategy was reflected by two factors: low-cost attributes and innovative attributes. Low-cost attributes allow an organisation to achieve competitive advantage by producing low cost products with good quality. The attention of the organisation is on adding value and offering low price by focusing on product improvement and close supervision of labour (Barney, 2011). Low-cost attributes may be as a result of large volume of production and economies of scale, which can be used to nullify any threat from suppliers (Barney, 2011; Kale & Arditi, 2003). Achieving economies of scale on every project is difficult to achieve because no two projects are entirely the same; thus, construction organisations can at best rely on active sources of reducing cost, either through materials purchasing or through concerted efforts to realign company activities to achieve cost efficiency.

The innovative attributes allow organisations to use innovative ideas to influence their products or services. Technological innovation, process innovation, as well as different financing methods such as partnering, alliancing, and concessional contractual arrangement, can all contribute to increased efficiency and cost leadership (Gunhan & Arditi, 2005; Kale & Arditi, 2003; Price & Newson, 2003). With respect to focus strategy, the data clustered on one factor which seems to reflect market segmentation attribute. When construction organisations try to capture certain segment of the market, they focus on adding value to the entire project delivery processes through the adoption of focus strategy. This allows them to use their capabilities and strategic core competences in many areas, such as procurement, using private finance initiatives, strategic alliances, Design-Build-Operate processes, etc (Price & Newson, 2003).

Organisations that adopt this type of strategy enjoy more patronage and clients' loyalty because the focus is on a market segment (Parnell, 2013; Porter, 1980).

6.4.2 Identifying the underlying structure of organisational characteristics

The research estimated management style with six items, organisational structure was measured with four items, while decision-making style was measured with four items. The respondents were asked to rate their own organisation based on the extent to which these different features were manifest in the organisation. Factor analysis was utilised to examine the convergent validity of the items, so that each of these variables could be represented by one or two dimensions. Thereafter the scores from individual items were combined to get a score for how the respondents perceived the different dimensions As a result; principal components factor analysis was used to investigate the nature of the relationship among organisational characteristics, and to explore whether an underlying structure could be identified.

Tables 6.16, 6.17 and 6.18 show all the components extractable from the analysis along with their initial Eigenvalues; the percentage of variance explained by each of the factors; and the cumulative variance attributable to each factor and the preceding factors used for measuring decision-making style, management style and organisational structures respectively. The KMO values for the decision-making style, management styles and organisational structure were 0.595, 0.729 and 0.595 respectively, as shown in Tables 6.13, 6.14 and 6.15, while the Bartlett's test of Sphericity indicates the correlation matrix was significantly different from an identity matrix.

Table 6. 13: KMO and Bartlett's Test results for Decision-making Style

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.595
Bartlett's Test of Sphericity	Approx. Chi-Square	52.539
	df	6
	Sig.	.000

Table 6. 14: KMO and Bartlett's Test results for Organisational Structure

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.595
Bartlett's Test of Sphericity	Approx. Chi-Square	31.942
	df	6
	Sig.	.000

Table 6. 15: KMO and Bartlett's Test results for Management style

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.729
Bartlett's Test of Sphericity	Approx. Chi-Square	104.197
	df	21
	Sig.	.000

From Table 6.16 we can see that all the variables for decision-making style converged on one component (explaining 51% of the total variance). Two factors were extracted for management style as shown in Table 6.17, with Factor 1 accounting for 417% of the total variance and Factor 2 contributing 14%. Considering the variables that are highly loaded on the factors, the first factor is referred to as participative management style while the second factor is dubbed directive management style. With respect to organisational structure, two factors became apparent. These were labelled organic and mechanistic organisational structure. Organic structure accounted for 44% of the total variance while mechanistic structure added 26% to the total variance (see Table 6.18). The factor loadings indicate that the constructs were reliable and possessed the power of explaining those factors despite the low alpha values.

Table 6. 16: Component Matrix for Decision-making Style

	Component
Decision-making Style (items)	**1**
Managers encourage employees to focus on key techniques, show independence and initiative in solving problem (directive)	.826
Management encourage analytic ideas and welcome alternative approaches to problem solving (analytical)	.703
Managers strengthen creativity and encourage independent action (conceptual)	.700
Managers are aware of socio-cultural attitudes of the employee & they are being guided towards meaningful problem solving strategies to create enabling environment (Behavioural)	.619
Total	2.050
% of Variance	51
Cumulative %	51

Extraction Method: Principal Component Analysis; 1 component extracted

Table 6. 17: Rotated Component Matrix for Management Style

	Component	
Management Style (items)	**1**	**2**
Employees & Managers present ideas, ask questions, listen, and provide feedback.	.841	
Management recognises & rewards efficiency, excellence, openness, social skill and contribution to decisions	.731	
Managers facilitate two-way communication, give room for employees to be heard and provide feedback during meetings	.721	
Employees tend to be more committed to goals when they are set by the management		.841
Management makes decisions in the best interests of employees after consultation		.652
Managers usually specify types of monitoring & require timely feedback, specific to their demand		.547
Total	2.863	1.012
% of Variance	41	14
Cumulative %	41	55

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Table 6. 18: Rotated Component Matrix for Organisational Structures

	Component	
Variables	**1**	**2**
Management channels organisation's system to maintain healthy relationship with business environment	.795	
The nature of the organisational structure encourages improve strategy and delegation of authorities	.738	
Managers ensure integration & coordination of individual employee activities and align them to company's strategies		.744
Management controls how individual employee works or activities are spelt out		.969
Total	1.780	1.038
% of Variance	45	26
Cumulative %	45	71

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

6.4.2.1 Discussion of results of organisational characteristics

From the descriptive statistics and factor analysis of the organisational constructs, a number of inferences can be drawn regarding decision-making style, management style and organisational structure.

Decision-making style

The factor analyses indicate that both analytic and directive decision-making styles were identified by the respondents as having a notable impact on organisational performance. An analytic decision-making style, which is based on careful analysis before a conclusion is reached, requires a large volume of information and depends on abstractions and instrumental logic. It can help to achieve quality and superior performance in construction works, because organisations that use this style tend to be more innovative and produce unique products that can create value for the business (Amzat & Idris, 2012). For example, Amzat and Idris (2012) examined the impact of decision-making style on job satisfaction of academic staff of the Malaysian Research University and found that an analytic decision-making style can cause dissatisfaction among employees. This is because organisations that adopt this style are viewed as having high tolerance for ambiguity, and are focused more on task-oriented and analytically-minded individuals. Whereas directive decision-making provides employees with a framework for decision-making where actions are to be aligned to the vision of the leader (Somech, 2006).

A directive decision-making style has been related to high performance where there are established rules for behaviour in team work, as it induces team members to devise ways of working effectively together to accomplish organisational objectives (Katzenbach & Smith, 1993; Sagie *et al.*, 2002). Contingency theory points out that there is no one "corrects" decision-making style; rather, different styles will be appropriate for different companies in different contexts.

Management style

From the results of the principal component analysis, two major dimensions were identified for management styles and these were referred to as: the participative style and authoritative style.

Participative management style

Participative style is a management style involving consultation with subordinates, where leaders of an organisation encourage all members of the organisation to contribute to the decision making process (Pardo-del-Val & Lloyd, 2003). Participative management is based on the belief that that involving subordinates in the decision-making process motivates staff, improves their commitment to the organisation, increases learning capabilities, and generates better ideas and decisions – ultimately improving performance (Amzat & Idris, 2012; Hinckley, 1985; Quinn & Spreitzer, 1997; Somech, 2006; Spreitzer, 1995; Thomas & Velthouse, 1990; Zeffane, 1996). The principle of participative management was endorsed by the survey respondents, who agreed that when leaders solicit new ideas from subordinates, the lower-ranking members of the organisation feel that they are a highly valued part of the system. Participants also agreed that when management recognises and rewards efficiency, then excellence, openness, social skills and contributions to decisionsand ultimately, performance improves.

Authoritative management style

This is synonymous with an achievement-oriented style, where challenging goals are set, performance improvements are sought, emphasis is placed on performance excellence, and there is an expectation that subordinates will attain high standards (Yukl, 2006). The perception of the respondents that employees tend to be more committed to goals when they are set by the management, align with the description of the style by Yulk (2006). There is some debate in the literature as to whether an authoritative management style is desirable. This management style is based on the assumption that the leader has sufficient information to examine all the

relevant alternatives in making far-reaching and effective decisions; but this is not always possible. As a result, researchers such as Peterson (1997) have argued that directive leaders are frequently implicated as a major cause of defective decision-making process and poor outcomes. By contrast, Baum and Wally (2003) argued that organisational performance increases when managers unambiguously define business strategy and settle chain of command and power. There is also a more contingent view that an authoritative style can either improve or hinder organisational performance through its influence on the flow and processing of information (Cruz, Henningsen & Smith, 1999). Cruz *et al*. (1999) argued that a leader can significantly distort information which may lead to a poor outcome, while an organisation whose quality of decision depends on effective management of information will benefit from having a directive leader.

Organisational structure

The fundamental importance of organisational structure got the performance of organisations has been emphasised in strategic management research (Slevin & Covin, 1995). Organisations try to adopt appropriate methods and structures in search of legality, acceptability and institutionalisation (Riebero & Scapens, 2006). These forms have a direct impact on organisation process and management, which, eventually, influences organisational performance (Sisaye & Birnberg, 2012).Organisations demonstrate their structure through the approach in which work is divided into different tasks. It reflects the formal outline of relationships, chain of command or communications, decision-making processes, procedures and systems (Martínez-León & Martínez-García, 2011; Mintzberg, 1983). In this research, factor analysis suggested the existence of two distinct structural forms, relating to variance in the organisation's approach to processing information. These differentiate between centralised (mechanistic) and/or decentralised (organic) forms of structure.

Mechanistic structure

This type of structure is based on establishing guidelines or "standard operating procedures" for certain tasks (March & Simon, 1993), which allow the organisation to influence individual behaviour. The organisation is not particularly interested in persuading the subordinate by giving reasons for acting in that manner; rather, the focus is simply on obtaining compliance with the guidelines (Homburg & Furst, 2005; Simon, 1997). This approach is designed to deal with scheduled challenges, but is unable to manage innovation or change. It may therefore hinder quick reactions to the competitive environment (Lam & Lundvall, 2006). Mechanistic

structure is better in a stable environment where rational decision-making is required in enhancing organisational performance, and is suitable for conservative organisations, with a reactive rather than risk-taking business philosophy. The mechanistic approach is often associated with Cost-leadership strategies (Govindarajan, 1988; Miller, 1988).

The organic approach

This loosely-designed structure aims to create a favourable environment within an organisation, with few levels of hierarchy and a lot of flexibility (Homburg & Furst, 2005). This approach is capable of influencing subordinate behaviour through training and motivating employees. Employees are encouraged to adopt shared organisational values and norms, thereby guiding them to make decisions which are favourable to the organisation (Homburg &Furst, 2005; Simon, 1997) rather than setting specific rules on how to act in each circumstance. The approach encourages proactive employee participation in management of organisations and fosters a trust-based culture within the system (Hankinson, 1999). An organic structure is beneficial to organisational performance in an uncertain, dynamic, complex and/or hostile environment, in which organisations have to adapt to continuous change and learning in order to achieve performance excellence (Martínez-León & Martínez-García, 2011). Differentiation strategies are typically linked to organic structures (Govindarajan, 1988; Miller, 1988).

6.5 Tests of research hypotheses

This section employs various statistical techniques to test the hypotheses presented in Chapter 4. Correlation analysis, multiple regressions analysis (MRA) and moderated regression analysis were used to examine the relationships between constructs measured in the study, and to validate earlier findings from the literature reviews. The results are discussed by relating them to previous studies. The hypotheses to be tested are:

Hypothesis 1: There is a significant positive relationship between competitive strategies (cost leadership, differentiation, and focus strategy) and organisational performance.
Hypothesis 2a: Organisational characteristics have a direct and significant relationship with organisational performance.
Hypothesis 2b: Organisational characteristics moderate the strength of relationship between competitive strategies and organisational performance.

Hypothesis 3: Environmental dimensions moderate the relationship between competitive strategies and organisational performance.
Hypothesis 4a: There is a significant relationship between organisational capabilities/resources and organisational performance which is mediated by competitive strategies
Hypothesis 4b: There is a significant positive relationship between organisational capabilities/resources and performance.
Hypothesis 5: Organisations that place emphasis on obtaining strategic fit with the business environment, and which adopt one of the generic strategies with appropriate organisational characteristics and resources/capability, will outperform competitors that do not.

To have a better understanding of this section, firstly, the study used quantitative methods to summarise the contents of the data collected. Such a summary is necessary to obtain preliminary information about the relationship among the variables collected. Data were collected for 18 variables from 72 construction organisations. See Table 19 for a complete list of the data variables and their corresponding summary and means, while Figure 6.1 provides an illustration of Table 19 as box plots. Except for Age, Size and Return on capital employed of the organisation, each variable was set at its Average (means) in both their main effects and in the interaction effects over the related categorical variable (Tsai & Gills, 2013). The resulting analysis data consisted only of continuous variables because the categorical components used in their computation will henceforth be ignored.

Both Table 19 and Figure 6.1 show that, except for the three variables that were not estimated as averages of categorical variables, the data is evenly distributed in the range [1, 5] (see Appendix F). This range is simply in accordance with the calibration of the categories that the variables were generated from. Three separate variables in the data are believed to be indicators of organisational performance. These are ROC, CA and OA. Each of these variables will be analysed separately as responses whose variation may be explained by the rest of the data. Therefore, this study seeks to present separate models from the data based on the hypotheses.

Table 6. 19: Summary and means of all the variables in the analysis data

	Variable	Min.	25% quartile	Median	Mean	75% quartile	Max.
1	Age	5.00	10.75	19.15	24.07	34.75	73.00
2	Size	45.00	80.75	162.00	1472.10	1381.50	12000.00
3	Dynamism (DYN)	2.50	3.50	3.75	3.78	4.25	4.75
4	Complexity (CMX)	2.33	3.67	4.00	3.97	4.33	5.00
5	Munificence (MUN)	2.75	3.75	4.00	4.13	4.50	5.00
6	Competitiveness (CMT)	2.67	3.83	4.00	4.07	4.33	5.00
7	Return on capital (ROCE)	3.43	35.63	74.19	503.36	297.37	12460.00
8	Competitors effectiveness (CE)	3.10	3.80	4.00	4.16	4.60	5.00
9	Objective attainment (OA)	3.00	4.00	4.17	4.16	4.33	5.00
10	Focus strategy (FS)	3.00	3.75	4.00	4.07	4.50	5.00
11	Differentiation strategy (DS)	3.00	3.83	4.08	4.12	4.38	4.83
12	Cost leadership strategy (CLS)	3.00	3.83	4.08	4.10	4.33	4.83
13	Human resources (HR)	3.00	3.67	4.17	4.01	4.33	4.83
14	Financial resources (FR)	2.75	3.75	4.00	4.07	4.50	5.00
15	Technological resources (TR)	2.67	3.17	3.50	3.46	3.67	4.60
16	Management style (MS)	2.43	3.29	3.79	3.76	4.14	5.00
17	Decision making style (DMS)	2.33	4.00	4.33	4.29	4.67	5.00
18	Organizational structure (OS)	2.75	3.50	4.00	3.92	4.25	5.00

Note: There are 72 observations and each variable is calculated as an average over multiple categorical variables

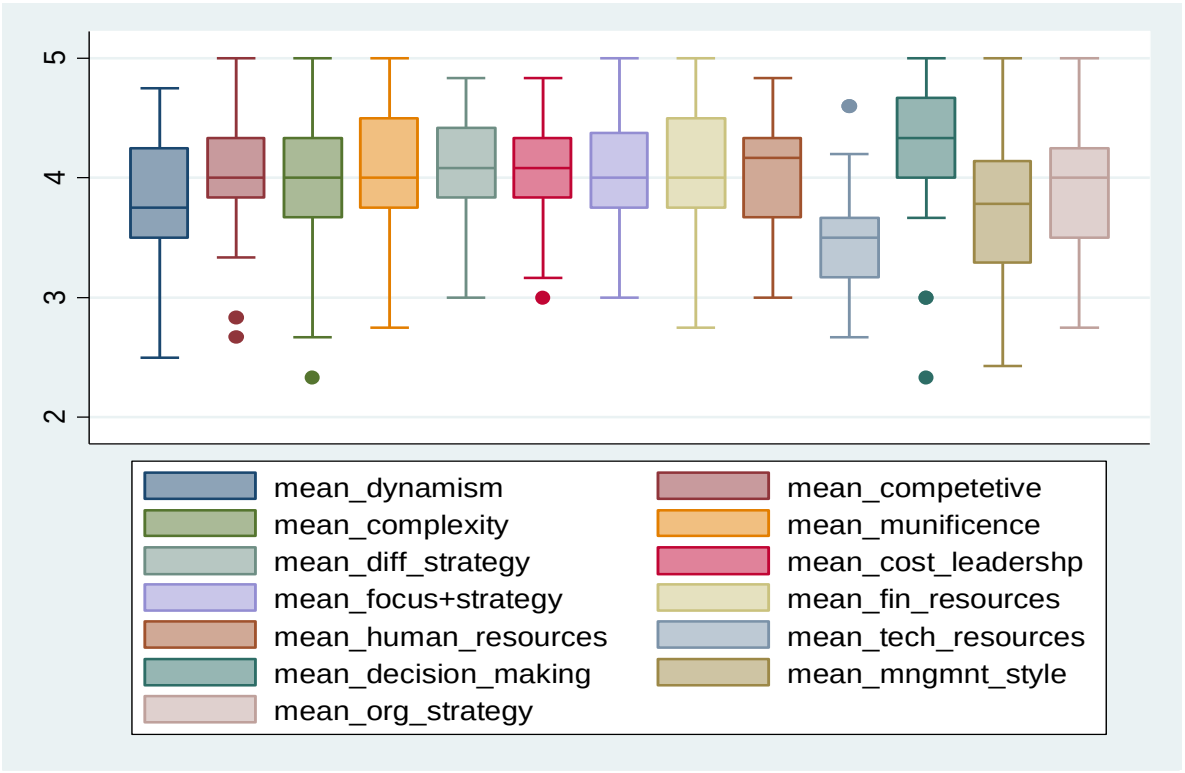

Figure 6. 1: Boxplots summarising the data analysis

Given that the responses of interest were all continuous, an ideal model for testing the analysis was the multiple linear regressions (MLR). MLR assumes that all the continuous variables in the model follow Gaussian (also known as Normal) distribution. Hence, prior to developing any model, it is important to confirm that this criterion is not violated. For this purpose, the histogram of variables from the organisational data were plotted (see Appendix G) and confirmed not to have violated the normality assumption.

Consider a set of p explanatory variables; $\boldsymbol{X} = \{X_1, X_2, \cdots, X_p\}$, such that, $X_j = \{x_{1j}, x_{2j}, \cdots, x_{nj}\}$, where, n denotes the number of subjects observed and, $\boldsymbol{x}_i = \{x_{i1}, x_{i2}, \cdots, x_{ip}\}$ corresponds to measurements collected from sbject i on each of the p variables. These explanatory variables could be any combination of continuous, discrete or categorical measurements. Assume that for each $\boldsymbol{x}_i$ a corresponding set of m continuous variable responses $\boldsymbol{y}_i$ were collected such that for the entire subjects, a matrix of responses $Y = \{\boldsymbol{y}_1, \boldsymbol{y}_{2,\cdots}, \boldsymbol{y}_m\}$ was collected. Multiple linear regression posits that the relationship between $\boldsymbol{X}$ and Y can be modelled as;

$$Y = \boldsymbol{XB}$$

The main goal of regression analysis is thus, to estimate the values of the regression coefficients (i.e. the elements of $\boldsymbol{B} = \{\beta_1, \beta_2, \cdots, \beta_p\}$). In terms of the analysis of the construction organizations data, $\boldsymbol{X}$ is made up of all the measured variables except, return on capital, objective attainment and competitor's effectiveness that make up the Y matrix.

6.5.1 Competitive strategies and performance

Hypothesis 1 explores whether competitive strategies used by organisations have a significant influence on their performance.

6.5.1.1 Testing hypotheses H1

Hypothesis 1: There is a significant positive relationship between competitive strategies (cost leadership, differentiation, and focus strategy) and organisational performance.

In order to test this hypothesis, Pearson's product moment correlation coefficient analysis was conducted between competitive strategies and three different measures of performance, as shown in Table 6.20. The results of the correlations showed that there was a significant relationship between competitive strategies and the measures of organisational performance. Correlation among the latent constructs ranged from 0.007 to 0.345 in absolute values. The higher the correlation coefficient, the stronger the relationship between the variables. (According to the categorisation Dancey and Reidy (2011), a correlation of 1 is a perfect correlation; 0.7 - 0.9 is a strong correlation; 0.4 - 0.6 is moderate; 0.1 - 0.3 is weak; and 0 means that no relationship exists at all). However, the effect of these however, according to the categorisation by Field (2013), a correlation of ±0.1 denotes small effect, ±0.3 represents medium effect and ±0.5 is a large effect.

Differentiation strategy exhibited the highest correlational coefficient with achievement of objectives ($r = -0.345$, $p = 0.01$). Interestingly, a significant, positive relationship of ($r= 0.209$, $p< 0.05$) was found between differentiation strategy and cost-leadership, suggesting that cost leadership was usually combined with a differentiation on certain segments of the construction market. The correlations among the constructs indicate that the data do not exhibit multicollinearaity as the absolute coefficients of correlation are in general less than 0.5 (Hair *et al*., 2010).

Table 6. 20: Correlation matrix for competitive strategies and performance measures

Constructs	1	2	3	4	5	6
Differentiation	1					
Cost-leadership	.209*	1				
Focus	.109	.111	1			
Competitor's effectiveness	.048	.119	.065	1		
Objective achievement	.146	.185	.091	-.052	1	
ROCE	-.345**	.120	-.007	.173	-.077	1

** Correlation is significant at the 0.01 level; ROCE- Returns on capital employed
* Correlation is significant at the 0.1 level

To explore these relationships further, multiple regression analyses were performed with the measures of performance as dependent variables and competitive strategies as predictors (see Appendix F1). That is, the following MLR was fitted and the associated regression coefficients were statistically tested whether or not they could be claimed to be significantly non-zero given the available information in the surveyed data.

$$\boldsymbol{y}_{ROCE} = \beta_0^{(ROCE)} + \beta_{CLS}^{(ROCE)}(CLS) + \beta_{DFS}^{(ROCE)}(DFS) + \beta_{FCS}^{(ROCE)}(FCS)$$

$$\boldsymbol{y}_{CA} = \beta_0^{(CA)} + \beta_{CLS}^{(CA)}(CLS) + \beta_{DFS}^{(CA)}(DFS) + \beta_{FCS}^{(CA)}(FCS)$$

$$\boldsymbol{y}_{OA} = \beta_0^{(OA)} + \beta_{CLS}^{(OA)}(CLS) + \beta_{DFS}^{(OA)}(DFS) + \beta_{FCS}^{(OA)}(FCS)$$

The models are presented in Tables 6.21. The research model 1 tests the degree to which use of the three strategies predicted the ROCE measures of performance as shown in Table 6.21. The model has a predictive ability of 15.8 % (R = 0.397; R^2 = 0.158; F-model =4.242 [with p = 0.01]). The results of model show that cost-leadership had positive significant relationship with ROCE while differentiation strategy showed negative but significant link with ROCE. Model 2 indicated the results of regressing competitor's effectiveness on the competitive strategies. As shown in Table 6.21, the model has a low predictive power of 1.7% (R = 0.131; R^2 = 0.017; F-model =0.396 [with p ≠ 0.05]). The results of regressing objective achievement on the competitive strategies are reported in model 3 on Table 6.21. Model 3 has a predictive power of 5% (R = 0.224; R^2 = 0.050; F-model =1.193 [with p = 0.027]). The strength of the models reported compared well with recent research conducted by Nandakumar (2008) where a predictive ability of 9.6% was considered acceptable using the guideline provided by Hair *et al.* (2010). Also, a study reported by Zehir and Ozsahin (2008) among large Turkish

manufacturing industry found ($R^2 = 0.02$) and Youndt, Snell, Dean and Lepark (1996) reported ($R^2 = 0.03$). However, models 2 and 3 show that there is no significant relationship between competitive strategies and non-financial measures of performance.

The results of the analysis in Models 2 and 3 which used quasi-objective and fully subjective measures contradict Kaplan and Norton (2001) and Hoque (2004), who found that that non-financial measures are better predictors of organisational performance. The findings of model 1 are also consistent with previous studies that have related financial measures of organisational performance to competitive strategies (Gosselin, 2005; McAdam & Bailies, 2002; Teeratansirikool *et al*., 2013). The results in Table 6.21 show that differentiation and cost-leadership strategies of construction organisations were significantly associated with the organisations' financial measures of performance.

Based on the deductions from Table 6.21, hypothesis 1 cannot be totally rejected as competitive (differentiation and cost-leadership) strategies were significantly associated with at least one (ROCE) of the measures of organisational performance. However, none of the strategies were significantly associated with the non-financial measure of performance. This supports Teeratansirikool *et al.* (2013) who found significant relationship between financial measures of performance and differentiation strategy, and the studies reported by Gosselin (2005), Olson and Slater (2002) and Simons (1987), who asserted that cost-leadership organisations place high emphasis on financial measures of performance.

Table 6. 21: Result of Regression Analysis between strategy and performance measures

	Dependent Variable		
	ROCE	Competitor's effectiveness	Objective achievement
Independent Variables	Model 1	Model 2	Model 3
Differentiation	-.388***	.020	.106
Cost-leadership	.200*	.109	.156
Focus	.013	.051	.062
R	0.397	0.131	0.224
R^2	0.158	0.017	0.050
Δ F	4.242**	0.396	1.193

Note: ROCE- Return on capital employed; *p<0.10; **p<0.05; ***p<0.01

6.5.2 Organisational characteristics

6.5.2.1 Hypothesis H2a: Direct relationship of organisational characteristics

In order to examine the influence of organisational characteristics (decision-making style, organisational structure, and management style) on organisational performance, the following hypotheses were tested.

Hypothesis 2a: Organisational characteristics have a direct and significant relationship with organisational performance.

Before testing the hypotheses, the nature of relationship between the constructs was first examined using correlational analysis. The results are shown in Table 6.22. Correlation coefficients with absolute values between 0.001 and 0.330 were found. Differentiation strategy exhibited the highest correlational coefficient with achievement of objectives ($r = -0.345$, $p = 0.01$), while a significant, positive relationship ($r= 0.209$, $p< 0.05$) was found between differentiation strategy and cost-leadership. A significant relationship was also found to exist between decision-making style and the competitor's effectiveness ($r = 0.330$, $p < 0.01$).

Table 6. 22: Correlation matrix for organisational characteristics, competitive strategies and performance measures

		1	2	3	4	5	6	7	8	9
1	Decision-making style	1								
2	Management style	.142	1							
3	Organisational structure	.008	.147	1						
4	Differentiation	.035	.001	.169	1					
5	Cost-leadership	-.030	.163	-.114	.209*	1				
6	Focus	.115	.030	.034	.109	.111	1			
7	Competitor's effectiveness	.330**	.180	-.028	.048	-.119	.065	1		
8	Objective achievement	.148	.070	.139	.146	-.185	.091	-.052	1	
9	ROCE	.147	-.045	-.127	-.345*	.120	-.007	.173	-.077	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level

Multiple linear regression was performed between measures of organisational performance and organisational characteristics (see Appendix F2).. Decision-making style, management style and organisational structure were the explanatory variables while ROCE, competitor's effectiveness and objective achievement were the dependent variables. Statistically, this implies fitting the following MLR and testing whether the associated regression coefficients were significantly different from zero.

$$\boldsymbol{y}_{ROCE} = \beta_0^{(ROCE)} + \beta_{DMS}^{(ROCE)}(DMS) + \beta_{MGS}^{(ROCE)}(MGS) + \beta_{OGS}^{(ROCE)}(OGS)$$

$$\boldsymbol{y}_{CA} = \beta_0^{(CA)} + \beta_{DMS}^{(CA)}(DMS) + \beta_{MGS}^{(CA)}(MGS) + \beta_{OGS}^{(CA)}(OGS)$$

$$\boldsymbol{y}_{OA} = \beta_0^{(CA)} + \beta_{DMS}^{(CA)}(DMS) + \beta_{MGS}^{(CA)}(MGS) + \beta_{OGS}^{(CA)}(OGS)$$

The models summary is shown in Table 23. Models 1 and 3 indicate very low R square value of 4% and 4.2% respectively. While model 2 indicate a relatively good R square value of 13% and this is significant at 0.05 level of confidence. The regression coefficient of decision-making under Model 2 is 0.310 which is significant at 0.001 levels.

This implies that, in explaining the degree of improvement of competitor's effectiveness in organizational performance relative to competitors, only decision-making style had significant direct effect. This is supported by Pertusa-Ortega *et al*. (2010), who argued that organisational structure does not directly impact on organisational performance, but influences performance through competitive strategy pursued by organisations.

Hence, hypothesis 2a which states that organisational characteristics have direct and significant impact on organisational performance cannot be entirely rejected, because decision-making style exhibits significant impact on competitor's effectiveness measure of performance and the model is significant at $p<0.05$. It can thus be concluded that H2a is partially supported.

Table 6. 23: Regression model summary of organisation characteristics and performance

	ROCE	competitor's effectiveness	Objective achievement
Independent variables	Model 1	Model 2	Model 3
Decision-making style	.155	.310***	.142
Management style	-.049	.143	.031
Organisational structure	-.121	-.052	.133
R	0.201	0.360	0.204
R^2	0.040	0.130	0.042
Δ F	0.950	3.378**	0.983

Note: ROCE- Return on capital employed; *p<0.10; **p<0.05; ***p<0.01

6.5.2.2 Hypothesis 2b: The main and moderating effect of organisational characteristics

Hypothesis 2b: Organisational characteristics moderate the strength of relationship between competitive strategies and organisational performance.

To test hypothesis 2b, all the variables for inclusion in the model were correlated. Table 6.24 shows the correlation matrix for all the variables. In order to test the moderating effect of organisational characteristics on the strength of relationship between competitive strategies and organisational performance, a moderated hierarchical regression analysis was employed. This was used to examine the interactions between the variables included in the model. Dunlap and Kemery (1987) and Jaccard, Wan and Turrisi (1990) suggested that a transformation that involved standardising the predictor variables is required prior to the formation of product terms. To this effect, the predicator variables were standardised before examining the interaction effects.

Table 6. 24: Correlation matrix for competitive strategies and performance measures

		1	2	3	4	5	6	7	8	9
1	Decision-making style	1								
2	Management style	.142	1							
3	Organisational structure	.008	.147	1						
4	Differentiation	.035	.001	.169	1					
5	Cost-leadership	-.030	.163	-.114	.209*	1				
6	Focus	.115	.030	.034	.109	.111	1			
7	competitor's effectiveness	.330**	.180	-.028	.048	.119	-.065	1		
8	Objective achievement	.148	.070	.139	.146	.185	-.091	.052	1	
9	ROCE	.147	-.045	-.127	-.345**	.120	-.007	.173	-.077	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level

Moderated hierarchical regression was used to isolate the main effects of organisational characteristics on organisational performance and to separately examine how each competitive strategies interacted with the relationship between organisational characteristics and performance. The study's overall procedure for each of the response variables (measures of performance) was the same. Two steps were involved in the analysis, first the set of organisational characteristics were introduced in order to control any effect strategy might have on measure of performance. In the second step, the interaction variables were added, a significant effect at this point between strategy and organisational performance would give support to the hypothesis 2b. Each of the measures of performance were represented by two models each in all the cases, and according to Jaccard *et al*. (1990), for a moderating or an interaction effect to be present, then the difference between the R square values in mode1 and 2 should be statistically significant. Some of the comprehensive models fitted include;

$$\boldsymbol{y}_{ROCE} = \beta_0^{(ROCE)} + \beta_{DFS}^{(ROCE)}(DFS) + \beta_{DMS}^{(ROCE)}(DMS) + \beta_{MGS}^{(ROCE)}(MGS) + \beta_{OGS}^{(ROCE)}(OGS) + \beta_{DMS*DFS}^{(ROCE)}(DMS * DFS) + \beta_{MGS*DFS}^{(ROCE)}(MGS * DFS) + \beta_{OGS*DFS}^{(ROCE)}(OGS * DFS) + \beta_{DMS*MGS*OGS}^{(ROCE)}(DMS * MGS * OGS)$$

$$\boldsymbol{y}_{CA} = \beta_0^{(CA)} + \beta_{DFS}^{(CA)}(DFS) + \beta_{DMS}^{(CA)}(DMS) + \beta_{MGS}^{(CA)}(MGS) + \beta_{OGS}^{(CA)}(OGS) + \beta_{DMS*DFS}^{(CA)}(DMS * DFS) + \beta_{MGS*DFS}^{(CA)}(MGS * DFS) + \beta_{OGS*DFS}^{(CA)}(OGS * DFS) + \beta_{DMS*MGS*OGS}^{(CA)}(DMS * MGS * OGS)$$

$$\boldsymbol{y}_{OA} = \beta_0^{(OA)} + \beta_{DFS}^{(OA)}(DFS) + \beta_{DMS}^{(OA)}(DMS) + \beta_{MGS}^{(OA)}(MGS) + \beta_{OGS}^{(OA)}(OGS) + \beta_{DMS*DFS}^{(OA)}(DMS * DFS) + \beta_{MGS*DFS}^{(OA)}(MGS * DFS) + \beta_{OGS*DFS}^{(OA)}(OGS * DFS) + \beta_{DMS*MGS*OGS}^{(OA)}(DMS * MGS * OGS)$$

Similar models were fitted for *Focus* and *Cost Leadership* types of organizational strategy.

Main effects. Model 1 for each measure of organisational performance in Tables 25, 26 and 27 explored the main effects of organisational characteristics on the relationship between strategy and organisational performance. From Table 25, model 1, with ROCE as measure of performance, was significant (R^2= 0.152, F= 3.008, p<0.05) and so also is model 1 in competitor's effectiveness of performance (R^2= 0.132, F= 2.544, p<0.05). Specifically, decision-making style was found to significantly linked to competitors measure of effectiveness in all the cases with the coefficient ranging between (B= 0.307 to 316, p<0.01). However, all the models with objective achievement as measure of performance were insignificant at p<0.1.

Moderating effects. In examining the moderating effects of organisational characteristics on the strength of relationship between competitive strategy and organisational performance, the rule stated by Jaccard *et al*. (1990) was followed. As a set, the interaction between differentiation strategy and ROCE as well as competitors effectiveness measure could be said to be moderated by organisational characteristics. This was a result of significant improvement in the R square values as seen in model 2 for ROCE (R^2= 0.318, F= 3.672, p<0.01) and competitor's effectiveness (R^2= 0.271, F= 2.925, p<0.01) in Table 6.25. From Table 6.25, it was observed that differentiation strategy interacted negatively with decision-making style (B=-0.266, p<0.01) and positively with organisational structure (B=0.348, p<0.01) with respect to ROCE measure of performance to provide some support for the hypothesis. From model 2 with respect to competitor's effectiveness measures in Table 6.25, it was the interaction between management style (B=0.210, p<0.10), organisational structure (B=0.232, p<0.10) and the combined effects of the organisational characteristics (B=-0.265, p<0.05) and differentiation strategy that contributed to the significance of the model. However, the same

interaction occurred between differentiation strategy, decision-making style (B= 0.250, $p<0.10$), management style (B= -0.210, $p<0.10$) and combined effects of organisational characteristics (B= -0.223, $p<0.10$), but was not significant enough to improve the R square significantly.

With respect to cost-leadership strategy, organisational characteristics moderated the relationship between cost-leadership strategy and competitor's effectiveness measures of organisational performance as shown by the significant change in the R square value (R^2= 0.213, F= 2.137, $p<0.01$) of model 2 in Table 6.26. From Table 6.37, no moderation existed between measures of organisational performance and focus strategy. However, overall, it could be inferred that the moderation results gave support to the hypothesis that organisational characteristics moderate the relationship between competitive strategy and organisational performance. This findings found support from previous studies (such as Albaum *et al*., 1995; Russ *et al*., 1996) where management and decision-making styles were found to have a significant link with performance. Similarly, a few authors found that certain organisational characteristic (such as structure and styles) had significant effects on organisational performance and that this indeed could enhance organisations competitive advantage (Baum & Wally, 2003; Goll & Rasheed, 1997; Lansley, 1994; Martínez-León & Martínez-García, 2011).

Table 6. 25: The main and moderating effects of decision-making styles on strategies and organisational performance

	ROCE		Competitor's effectiveness		Objective achievement	
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Differentiation	-.340***	-.361***	.047	-.090	.122	.085
Decision-making style (DMS)	.168	.110	.309***	.329***	.137	.185
Management style (MGS)	-.059	-.100	.145	.176	.034	.042
Organisational structure (OGS)	-.062	-.177	-.060	-.112	.112	.150
Decision-making style x Differentiation		-.266**		.167		.250*
Management style x Differentiation		.098		.210*		-.210*
Organisational structure x Differentiation		.348***		.232*		.158
DMS x MGS x OGS		.006		-.265**		-.223*
R	0.390	0.564	0.363	0.520	0.237	0.410
R^2	0.152	0.318	0.132	0.271	0.056	0.168
Δ F	3.008**	3.672***	2.544**	2.925***	0.993	1.594

Note: ROCE- Return on capital employed; *p<0.10; **p<0.05; ***p<0.01

Table 6. 26: The main and moderating effects of organisational characteristics on strategies and performance

	ROCE		Competitor's effectiveness		Objective achievement	
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Cost-leadership	.126	.104	.104	.088	.210*	.189
Decision-making style (DMS)	.162	.133	.316***	.343***	.154	.139
Management style (MGS)	-.073	-.081	.123	.145	-.010	.030
Organisational structure (OGS)	-.103	-.089	-.037	-.088	.163	.219*
Decision-making style x Cost-leadership		.104		-.120		.023
Management style x Cost-leadership		-.077		.075		-.146
Organisational structure x Cost-leadership		.040		.173		-.029
DMS x MGS x OGS		-.020		-.173		-.148
R	0.235	0.249	0.374	0.462	0.289	0.355
R^2	0.055	0.062	0.140	0.213	0.083	0.126
Δ F	0.979	0.521	2.276**	2.137**	1.524	1.138

Note: ROCE- Return on capital employed; *p<0.10; **p<0.05; ***p<0.01

Table 6. 27: The main and moderating effects of organisational characteristics on strategies and performance

	ROCE		Competitor's effectiveness		Objective achievement	
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Focus	-.020	-.027	.027	.006	.070	.038
Decision-making style (DMS)	.157	.163	.307***	.275**	.134	.146
Management style (MGS)	-.049	-.023	.143	.161	.030	.068
Organisational structure (OGS)	-.120	-.140	-.052	-.009	.131	.137
Decision-making style x Focus		-.085		.080		.051
Management style x Focus		.100		-.105		-.002
Organisational structure x Focus		.062		-.104		.163
DMS x MGS x OGS		.015		-.197		-.123
R	0.201	0.235	0.361	0.416	0.215	0.300
R^2	0.041	0.055	0.130	0.173	0.046	0.090
Δ F	0.709	0.460	2.512**	1.647	0.815	0.622

Note: ROCE- Return on capital employed; *p<0.10; **p<0.05; ***p<0.01

6.5.3 The moderating effect of environment on competitive strategy

Hypothesis 3: Environmental dimensions moderate the relationship between competitive strategies and organisational performance.

Table 6.28 shows the Pearson product–moment correlations between environmental characteristics, competitive strategies and organisational performance. A significant, positive correlation was found between focus strategy and environmental dynamism. Nonetheless, the correlations between competitive strategy and measures of performance were found to be insignificant except differentiation strategy with significant negative relationship with ROCE. Lack of significant correlational relationship between environment dimensions and performance, indicated that environmental dimensions act as moderating variables that impact on the nature of the relationship between the predictor and response variables, thus giving support to Hypothesis 3 as stated in similar research that focused on the manufacturing industry (e.g. Goll and Raheed, 1997; Nandakumar *et al*., 2010; Prescott, 1986).

Table 6. 28: Correlations of Environment, competitive strategy and organisational performance

	Variables	1	2	3	4	5	6	7	8	9	10
1	Differentiation	1									
2	Cost-leadership	.209	1								
3	Focus	.109	.111	1							
4	Competitive intensity	.191	.161	.189	1						
5	Complexity	-.166	.044	.201	.090	1					
6	Dynamism	.089	-.020	.329**	-.024	-.021	1				
7	Munificence	.082	.125	.055	-.143	.203	-.065	1			
8	competitor's effectiveness	.048	.119	.065	-.041	-.206	-.015	.041	1		
9	Objective achievement	.146	.185	.091	.106	.022	.172	.211	-.052	1	
10	ROCE	-.345**	.120	-.007	-.073	.082	-.002	.151	.173	-.077	1

Note: ROCE- Return on capital employed; **p<0.01

Hypothesis 3 was tested with moderated regression analysis (as shown in Appendix F3). Moderated regression analysis was performed individually on the three dependent variables: objective achievement, competitor's effectiveness and returns on investment (ROCE). The independent variables were the environmental dimensions and competitive strategies. The procedure followed the method used in testing hypothesis 2b in section 6.5.2.2. The analysis attempted to isolate the main effects of environmental dimensions on competitive strategies and organisational performance, and to individually investigate how the strength of each competitive strategy relationship with organisational performances was moderated by environmental dimensions. For example, the fitted models for *focus* organizational strategy can be stated as:

$$\begin{aligned} \boldsymbol{y}_{ROCE} = \beta_0^{(ROCE)} + \beta_{FCS}^{(ROCE)}(FCS) + \beta_{CPT}^{(ROCE)}(CPT) + \beta_{CPL}^{(ROCE)}(CPL) + \beta_{DYN}^{(ROCE)}(DYN) \\ + \beta_{MUN}^{(ROCE)}(MUN) + \beta_{CPT*FCS}^{(ROCE)}(CPT * FCS) + \beta_{CPL*FCS}^{(ROCE)}(CPL * FCS) \\ + \beta_{DYN*FCS}^{(ROCE)}(DYN * FCS) + \beta_{MUN*FCS}^{(ROCE)}(MUN * FCS) \\ + \beta_{CPT*CPL*DYN*MUN}^{(ROCE)}(CPT * CPL * DYN * MUN) \end{aligned}$$

$$\boldsymbol{y}_{CA} = \beta_0^{(CA)} + \beta_{FCS}^{(CA)}(FCS) + \beta_{CPT}^{(CA)}(CPT) + \beta_{CPL}^{(CA)}(CPL) + \beta_{DYN}^{(CA)}(DYN) + \beta_{MUN}^{(CA)}(MUN) + \beta_{CPT*FCS}^{(CA)}(CPT * FCS) + \beta_{CPL*FCS}^{(CA)}(CPL * FCS) + \beta_{DYN*FCS}^{(CA)}(DYN * FCS) + \beta_{MUN*FCS}^{(CA)}(MUN * FCS) + \beta_{CPT*CPL*DYN*MUN}^{(CA)}(CPT * CPL * DYN * MUN)$$

$$\boldsymbol{y}_{OA} = \beta_0^{(OA)} + \beta_{FCS}^{(OA)}(FCS) + \beta_{CPT}^{(OA)}(CPT) + \beta_{CPL}^{(OA)}(CPL) + \beta_{DYN}^{(OA)}(DYN) + \beta_{MUN}^{(OA)}(MUN) + \beta_{CPT*FCS}^{(OA)}(CPT * FCS) + \beta_{CPL*FCS}^{(OA)}(CPL * FCS) + \beta_{DYN*FCS}^{(OA)}(DYN * FCS) + \beta_{MUN*FCS}^{(OA)}(MUN * FCS) + \beta_{CPT*CPL*DYN*MUN}^{(OA)}(CPT * CPL * DYN * MUN)$$

The models fitted for *Differentiation* and *Cost Leadership* types of organizational strategy were formulated similarly.

The model summary showed in Tables 6.29, 6.30 and 6.31 indicated the R^2 values of all the models. It can be seen from the tables that all the R^2 for all the moderated models were insignificant. Some variables individually contributed significantly to models but the main objective here was to examine whether environmental dimensions moderate the strength of relationship between competitive strategies and performance. Therefore, it can be concluded that there is no significant interaction effects between competitive strategies and environmental dimensions (complexity, competitive intensity, dynamism and munificence). This is supported by a related study conducted by Prescott (1986) who examined the relationship between environment, strategy and performance, the research revealed insignificant interaction between strategy and environment.

This result is also consistent with the findings of Nandakumar (2008) who found that there is no significant interaction between competitive strategies and environmental characteristic (dynamism and hostility) but they act as homologiser. Hence, hypothesis 3 that states that environmental dimensions moderate the relationship between competitive strategies and organisational performance was rejected.

Table 6. 29: The main and moderating effects of environmental dimensions on strategies and performance

	ROCE		Competitor's effectiveness		Objective achievement	
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Differentiation	-.438***	-.409	.011	.078	.143	.065
Competitive intensity (CPT)	.035	.050	-.063	-.049	.099	.055
Complexity (CPL)	.016	.043	-.321**	-.304*	.033	.026
Dynamism (DYN)	.114	.131	.013	.042	.212	.197
Munificence (MUN)	.186	.169	.115	.086	.192	.284*
Competitive intensity x Differentiation		.031		.214		.001
Complexity x Differentiation		-.142		-.173		.101
Dynamism x Differentiation		-.075		-.086		.032
Munificence x Differentiation		-.185		.001		.203
CPTxCPLxDYNxMUN		-.085		-.025		-.223
R	0.446	0.515	0.330	0.434	0.372	0.467
R^2	0.199	0.265	0.109	0.188	0.138	0.218
Δ F	2.130*	1.369	1.050	0.881	1.379	1.062

Note: ROCE- Return on capital employed; *p<0.10; **p<0.05; ***p<0.01

Table 6. 30: The main and moderating effects of environmental dimensions on strategies and performance

	ROCE		Competitor's effectiveness		Objective achievement	
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Cost-leadership	.174	.187	.067	.085	.107	.095
Competitive intensity (CPT)	-.145	-.152	-.084	-.017	.099	.041
Complexity (CPL)	.072	.080	-.319**	-.317**	.022	.070
Dynamism (DYN)	.040	.027	.023	-.001	.254*	.291*
Munificence (MUN)	.138	.125	.110	.139	.195	.214
Competitive intensity x Cost-leadership		-.159		-.139		-.180
Complexity x Cost-leadership		.051		-.144		.035
Dynamism x Cost-leadership		-.009		.101		-.303
Munificence x Cost-leadership		.119		-.194		.094
CPTxCPLxDYNxMUN		.038		.026		-.076
R	0.242	0.326	0.335	0.436	0.361	0.514
R^2	0.058	0.106	0.113	0.190	0.130	0.265
Δ F	0.553	0.452	1.090	0.892	1.286	1.367

Note: ROCE- Return on capital employed; *p<0.10; **p<0.05; ***p<0.01

Table 6. 31: The main and moderating effects of environmental dimensions on strategies and performance

	ROCE		Competitor's effectiveness		Objective achievement	
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Focus	-.040	-.033	.175	.162	.102	.040
Competitive intensity (CPT)	-.073	-.065	-.098	-.108	.114	.133
Complexity (CPL)	.071	.070	-.352**	-.357**	.000	.123
Dynamism (DYN)	.034	-.007	-.046	-.037	.206	.177
Munificence (MUN)	.151	.151	.113	.128	.202	.289*
Competitive intensity x Focus		-.032		.020		.027
Complexity x Focus		.057		.107		.277
Dynamism x Focus		-.200		.137		.069
Munificence x Focus		-.207		-.058		.190
CPTxCPLxDYNxMUN		-.101		-.052		-.012
R	0.184	0.314	0.365	0.404	0.359	0.493
R^2	0.034	0.099	0.134	0.163	0.129	0.243
Δ F	0.303	0.417	1.325	0.740	1.272	1.219

Note: ROCE- Return on capital employed; *p<0.10; **p<0.05; ***p<0.01

6.5.4 Organisational resources/capability and performance

Hypothesis 4a: There is a significant positive linear relationship between organisational capabilities/resources and performance.

Hypothesis 4b: There is a significant relationship between organisational capabilities/resources and organisational performance through competitive strategies.

In order to test these hypotheses, inter-variable correlations were calculated. All variables relating to organisational resources and capability, environment, and competitive strategy were correlated with measures of organisational performance. Table 6.32 presents the correlations results of all the variables examined. The results of the correlation indicated significant relationships between some of the variables. Technological capabilities were positively and significantly related to differentiation strategy ($r = 0.346$, $p<0.001$). Differentiation strategy and cost-leadership were significantly related. Thus one can infer that organisations that identified their strengths technologically or possesses better technology tended to differentiate themselves better to achieve superior performance.

However, the relationship between financial measures of organisational performance was significant, being negatively related to differentiation strategy. The result, supported the conventional assertion that organisation that pursue differentiation strategy tend to place high premium on the use of non-financial measures of organisational performance (Govindarajan & Gupta, 1985; Hoque, 2004; Porter, 1980). Human resources and financial capabilities showed insignificant negative correlation with competitive strategies as well as measures of performance. This supports the assertion of Newbert (2007), that the relationship between capabilities/resources and organisational performance may be inconclusive if the mediating role of competitive strategy is not explored. Hence, the lack of correlation between measures of organisation's resources and capabilities lend support to hypothesis 4b

Table 6. 32: Correlation results of strategies, resources and capability, and measures of performance

		1	2	3	4	5	6	7	8	9
1	Differentiation	1								
2	Cost-leadership	.209*	1							
3	Focus	.109	.111	1						
4	Competitor's effectiveness	.048	.119	.065	1					
5	Objective achievement	.146	.185	.091	-.052	1				
6	ROCE	-.345**	.120	-.007	.173	-.077	1	.125		
7	Financial resources	-.104	-.068	-.060	-.008	-.018	.125	1		
8	Human resources	-.105	-.102	-.063	-.039	.101	-.006	.150	1	
9	Technological resources	.346**	.121	.026	.076	-.019	.132	.065	.170	1

** Correlation is significant at the 0.01 level; ROCE- Returns on capital employed
* Correlation is significant at the 0.1 level

To test hypothesis 4b, multiple hierarchical regression analysis was used to ascertain the extent of the association between organisational capabilities (technology, human resources and financial resources), competitive strategies and organisational performance (see Appendix F4). The models fitted include:

$$\boldsymbol{y}_{ROCE} = \beta_0^{(ROCE)} + \beta_{FR}^{(ROCE)}(FR) + \beta_{HR}^{(ROCE)}(HR) + \beta_{TR}^{(ROCE)}(TR) + \beta_{DFS}^{(ROCE)}(DFS) + \beta_{CLS}^{(ROCE)}(CLS) + \beta_{FCS}^{(ROCE)}(FCS)$$

$$\boldsymbol{y}_{CA} = \beta_0^{(CA)} + \beta_{FR}^{(CA)}(FR) + \beta_{HR}^{(CA)}(HR) + \beta_{TR}^{(CA)}(TR) + \beta_{DFS}^{(CA)}(DFS) + \beta_{CLS}^{(CA)}(CLS) + \beta_{FCS}^{(CA)}(FCS)$$

$$\boldsymbol{y}_{OA} = \beta_0^{(OA)} + \beta_{FR}^{(OA)}(FR) + \beta_{HR}^{(OA)}(HR) + \beta_{TR}^{(OA)}(TR) + \beta_{DFS}^{(OA)}(DFS) + \beta_{CLS}^{(OA)}(CLS) + \beta_{FCS}^{(OA)}(FCS)$$

The summary of the results are presented in Tables 6.33. From Table 6.33, models 1, 3 and 5 (showing all the measures of performance) examined the main or direct effect of organisational resources and capabilities on performance, and none of the models were found to be significant at $p < 0.1$. Models 2, 4 and 6 showed the mediating effects of resources and capabilities on performance. Only model 2 was found to be significant ($R^2 = 0.238$, $F=3.392$, $p<0.05$), while models 4 and 6 were insignificant. Differentiation strategy ($B= -0.486$, $p<0.01$) as well as technological resources ($B=0.209$, $p<0.05$) contributed to the significance of model 2. This showed that strategy mediated in the relationship between organisation's resources and capabilities and performance.

These findings gave support to the hypothesis 4b that strategy mediates in the relationship between resources and capabilities and organisational performance, though only differentiation strategy was found to be significantly related. This is consistent with Chew *et al*. (2008) who argued that organisational resources organised into capabilities need to align with suitable strategy to achieve superior performance. It also supported Spencer *et al's*. (2009) conclusion, that association exists between an organisation's strategic emphases on differentiation and organisational performance through the mediating effect of financial measures of performance.

Table 6. 33: The main and moderating effects of environmental dimensions on strategies and performance

	ROCE		Competitor's effectiveness		Objective achievement	
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
(Constant)						
Financial resources	.124	.084	-.005	.003	-.032	-.001
Human resources	-.047	-.099	-.052	-.038	.112	.162
Technological resources	.132	.289**	.085	.071	-.036	-.125
Differentiation		-.486***		-.007		.162
Cost-leadership		.181		.102		.175
Focus		.017		.050		.067
R	0.182	0.488	.092	.148	.112	.284
R^2	0.033	0.238	.009	.022	.013	.081
Δ F	0.781	3.392**	0.196	0.296	.289	1.610

Note: ROCE- Return on capital employed; *p<0.10; **p<0.05; ***p<0.01

6.5.5 Linkages between organisational characteristics, strategies, environment, resources and performance

Hypothesis 5: Organisations that place emphasis on obtaining strategic fit with the business environment, and which adopt one of the generic strategies with appropriate organisational characteristics and resources/capability, will outperform their competitors that do not.

In order to test the hypothesis that examines the degree and nature of the association between all the variables are considered, the first step was to correlate organisational characteristics, environment, capability, competitive strategy and organisational performance. From Table 6.34, it can be seen that environmental dynamism was significantly and positively related with organisational structure (r = 0.255, p<0.05) and focus strategy (0.330, p<0.01).
Differentiation strategy was linked positively to technological resources (r= 0.346, p< 0.001) and negatively related to financial measures of organisational performance (r= -0.345, p<0.01). Also evident from the results is that focus strategy was positively related to a complex environment (r= 0.201, p<0.10). Differentiation strategy and technological capability were found to be positively and significantly correlated (r = 0.346, p<0.01). Table 6.34 indicates that construction organisation managers need to consider their competitive performance analysis factors when making decisions, as this was positively correlated (r = 0.330, p<0.001). Differentiation strategy was negatively and significantly related to financial measures of

performance (r= -0.345, p<0.01). However, human resources capability was negatively related to organisational structure (r=-0.216, p<0.10).

The results show that organisations employed focus strategy in a complex and dynamic business environment. However, Price *et al*. (2003) asserted that construction organisations do use focus strategy to concentrate on a certain market segment and apply either cost-leadership strategy or differentiation strategy. Therefore, it can be said that the relationships support the idea that differentiation strategies are used by organisations in a complex and dynamic environment, where organisations need to be innovative and improve on their products or services to compete favourably in the market (Kabadayi *et al.*, 2007; Nandakumar *et al*., 2010).

Furthermore, the relationship between organisational structure and dynamic environment suggested that for an organisation to be able to efficiently execute its strategy in a dynamic environment, it needs to create an apposite organisational structure (Chandler, 1962). Hence, when an organisation pursues a differentiation strategy it requires a suitable structural system to promote independent strategic inventiveness (Hutt, Reingen & Ronchetto, 1988; Miller, 1986; Ward *et al*., 1996). Also as indicated by the results of the correlation, the significant relationship between decision-making styles and measures of competitor's effectiveness supported Goll and Rasheed (1997) assertion that in a dynamic environment the style of decision-making does have a greater impact on organisational performance. Considering the results of the correlation analysis one can say that organisations achieve sustained performance when the right organisational characteristics as well as resources are balanced with appropriate competitive strategy in a suitable business environment. This suggests that organisational characteristics, resources/capability, competitive strategies as well as environmental factors all have an impact on performance, thus giving partial support for Hypothesis 5.

Table 6. 34: Correlations and descriptive statistics for all the variables in the study

S/N	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Decision-making style	1															
2	Management style	.142	1														
3	Organisational structure	.008	.147	1													
4	Differentiation	.035	.001	.169	1												
5	Cost-leadership	-.030	.163	-.114	.209*	1	.111										
6	Focus	.115	.030	.034	.109	.111	1										
7	Competitive intensity	-.102	.071	-.002	.191	.161	.189	1									
8	Complexity	-.117	-.036	-.181	-.166	.044	.201*	.090	1								
9	Dynamism	-.083	.162	.255**	.089	-.020	.329***	-.024	-.021	1							
10	Munificence	-.007	-.087	-.010	.082	.125	.055	.143	.203	-.065	1						
11	Financial resources	-.012	-.001	-.019	-.104	-.068	-.060	.180	.068	-.109	.054	1					
12	Human resources	.052	.010	-.216*	-.105	-.102	-.063	-.132	.070	-.120	-.080	.150	1				
13	Technological resources	.139	.092	-.137	.346***	.121	.026	.099	-.190	-.068	.003	.065	.170	1			
14	competitor's effectiveness	.330***	.180	-.028	.048	.119	.065	-.041	-.206	-.015	.041	-.008	-.039	.076	1		
15	Objective achievement	.148	.070	.139	.146	.185	.091	.106	.022	.172	.211	-.018	.101	-.019	-.052	1	
16	ROCE	.147	-.045	-.127	-.345***	.120	-.007	-.073	.082	-.002	.151	.125	-.006	.132	.173	-.077	1

Next, multiple regression analysis was employed to further test hypothesis 5 and all the independent variables were regressed against the response variables, which are the measures of organisational performance (ROCE, competitor's effectiveness and objective achievement). In other words, the following model was fitted:

$$\begin{aligned}\boldsymbol{y}_{ROCE} = \beta_0^{(ROCE)} &+ \beta_{DMS}^{(ROCE)}(DMS) + \beta_{MGS}^{(ROCE)}(MGS) + \beta_{OGS}^{(ROCE)}(OGS) + \beta_{DFS}^{(ROCE)}(DFS) \\ &+ \beta_{CLS}^{(ROCE)}(CLS) + \beta_{FCS}^{(ROCE)}(FCS) + \beta_{CPT}^{(ROCE)}(CPT) + \beta_{CLS}^{(ROCE)}(CLS) \\ &+ \beta_{DYN}^{(ROCE)}(DYN) + \beta_{MUN}^{(ROCE)}(MUN) + \beta_{FR}^{(ROCE)}(FR) + \beta_{HR}^{(ROCE)}(HR) \\ &+ \beta_{TR}^{(ROCE)}(TR)\end{aligned}$$

$$\begin{aligned}\boldsymbol{y}_{CA} = \beta_0^{(CA)} &+ \beta_{DMS}^{(CA)}(DMS) + \beta_{MGS}^{(CA)}(MGS) + \beta_{OGS}^{(CA)}(OGS) + \beta_{DFS}^{(CA)}(DFS) + \beta_{CLS}^{(CA)}(CLS) \\ &+ \beta_{FCS}^{(CA)}(FCS) + \beta_{CPT}^{(CA)}(CPT) + \beta_{CLS}^{(CA)}(CLS) + \beta_{DYN}^{(CA)}(DYN) + \beta_{MUN}^{(CA)}(MUN) \\ &+ \beta_{FR}^{(CA)}(FR) + \beta_{HR}^{(CA)}(HR) + \beta_{TR}^{(CA)}(TR)\end{aligned}$$

$$\begin{aligned}\boldsymbol{y}_{OA} = \beta_0^{(OA)} &+ \beta_{DMS}^{(OA)}(DMS) + \beta_{MGS}^{(OA)}(MGS) + \beta_{OGS}^{(OA)}(OGS) + \beta_{DFS}^{(OA)}(DFS) + \beta_{CLS}^{(OA)}(CLS) \\ &+ \beta_{FCS}^{(OA)}(FCS) + \beta_{CPT}^{(OA)}(CPT) + \beta_{CLS}^{(OA)}(CLS) + \beta_{DYN}^{(OA)}(DYN) \\ &+ \beta_{MUN}^{(OA)}(MUN) + \beta_{FR}^{(OA)}(FR) + \beta_{HR}^{(OA)}(HR) + \beta_{TR}^{(OA)}(TR)\end{aligned}$$

As shown in Table 6.35. Model 1 showed the relationship between the financial measure of organisational performance and the independent variables (measures of organisational characteristics, resources and capabilities, environments and strategies). Models 2 and 3 indicated their relationships with competitor's effectiveness and objective achievement respectively. Model 1 indicated that differentiation strategy, cost leadership as well as technological resources significantly contributed to the model, thus only model 1 is significant ($R2= 0.452$, $F= 2.218$, $p<0.05$) and lends support for hypothesis 5. Therefore, hypothesis 5 (that states that *organisations that place emphasis on obtaining strategic fit with the business environment, adopting one of the generic strategies with appropriate organisational characteristics and resources/capability, will outperform their competitors that do not*), cannot be entirely rejected. However, the hypothesis could be restated as organisations *that place emphasis on obtaining strategic fit with the business environment, adopt one of the generic strategies with appropriate organisational characteristics and resources/capability, will outperform their competitors financially*.

Table 6. 35: Regression summary of all the predictive variables and performance

	ROCE	competitor's effectiveness	Objective achievement
Independent variables	Model 1	Model 2	Model 3
Decision-making style	.047	.234	.074
Management style	-.137	-.058	.003
Organisational structure	.080	.157	.161
Differentiation	-.598***	-.020	.164
Cost-leadership	.302*	.120	.129
Focus	-.131	.129	.103
Competitive intensity	-.159	-.222	.034
Complexity	.152	-.294	-.017
Dynamism	.230	-.043	.174
Munificence	.137	.078	.189
Financial resources	.213	.175	.163
Human resources	-.194	-.240	.119
Technological resources	.406***	-.017	-.183
R	0.672	0.524	0.496
R^2	0.452	0.275	0.246
ΔF	2.218**	1.020	0.879

6.5.6 Summary of outcomes for models and hypotheses

This section provides summary of the hypotheses tested and also compares the explanatory powers of the predictive regression models as well as the strength of the paradigm proposed by the research to explain the variances in the performance of construction organisations. From the results, it could be seen that the explanatory power of the model is low, but it compares well with many of the research in the mainstream strategic management that explore the relationship between strategy and organisational performance (e.g. Govindarajan, 1988). However, the low predictive power of the model does not in any way invalidate the findings but could as a result of complexity and evolving nature of organisational performance. Jacobson (1987) stated that a low R squared value is significant enough to influence organisational performance over time. Furthermore, the results of the correlations show medium effects, this is also consistent with findings by Dess and Davis (1984) and Porter (1980) in which the competitive strategy variable correlated significantly with the importance of new product development ($r = .23$, $p < .01$) and product quality ($r = .21$, $p < .01$).

The results provide evidence to support hypotheses 1 (that there is a significant positive relationship between competitive strategies (cost leadership, differentiation, and focus strategy) and organisational performance, 2b (which states that organisational characteristics moderate the strength of relationship between competitive strategies and organisational performance), 4b (there is a significant positive relationship between organisational capabilities/resources and performance) and 5 (organisations that place emphasis on obtaining strategic fit with the business environment, and which adopt one of the generic strategies with appropriate organisational characteristics and resources/capability, will outperform competitors that do not). However, the results fail to support the hypothesised statements 2a (organisational characteristics have a direct and significant relationship with organisational performance), 3 (environmental dimensions moderate the relationship between competitive strategies and organisational performance) and 4a (there is a significant relationship between organisational capabilities/resources and organisational performance which is mediated by competitive strategies) within the study

6.6 Clustering of construction organisations

Both the strategic and construction management literatures contain many examples of investigations into the structure of competitors within an industry. Categorising and comparing different types of organisations can be useful in explaining differences in the performance between organisations operating within the same industry (Dikmen *et al*., 2009; Kale & Arditi, 2002; Porter, 1980; Tan *et al*., 2012). However, some researchers have questioned the existence of a theoretical foundation for identifying such strategic groupings (e.g. Barney & Hoskisson, 1990; Hatten & Hatten, 1987). This criticism stems from the inability of researchers to distinguish between true effects and spurious effects, and the *á-priori* adoption of cluster analysis to determine groupings even when no clear subsets are evident in the sample of organisations (Budayan, 2008; Dranove, Peteraf, & Shanley, 1998). It is true that all cluster analysis techniques face some challenges which might impair their outcomes. These potential problems include variation in the units of measurement, problems in determining the number of clusters to retain inter-correlations among the variables, and inappropriate tests of statistical significance (Hair *et al*., 2010; Kim & Lim, 1988).

Despite the critiques, the concept of clustering organisations into different strategic categories or ‘families’ can be applied usefully. Clustering provides a way to describe how organisations

differ in terms of the strategies they use. It also allows one to test the hypothesis that organisations with better strategies outperform those with weak or confused strategies (Schendel & Hofer, 1979). To this end, this research used cluster analysis (based on organisations' background and strategic orientation) to categorise organisations with similar strategies into groups. This classification might help organisations to have a better understanding of their strategic attributes, and to put in place mechanisms for improving performance through competitive strategies. Although different tools such as taxonomies, factor analysis and clustering algorithms have been applied in strategic grouping of organisations (Dess & Davis, 1984; Harrigan, 1985; Kim & Lim, 1988), cluster analysis remains the most popular multivariate technique for strategic grouping.

Before undertaking cluster analysis, factor analysis was performed to identify the strategic competitive dimensions strongly associated with each of Porter's generic strategies, as used by Dess and Davis (1984) and Kim and Lim (1988). Variables with factor loading above the 0.5 threshold were retained; those with lower loadings were excluded from further analysis in the interests of parsimony. The study also examined the data for multilinearity between the variables using Pearson correlations, as multilinearity may result in errors among the underlying constructs (Dikmen *et al*., 2009). No evidence of multilinearity effects was found within the data set. The data used for the analysis were standardized as z-scores (mean = 0, standard deviation = 1) to eliminate inherent partiality in calculating Euclidean distance between the variables (Kale & Arditi, 2002; Tan *et al*., 2012).

Selection of an appropriate number of clusters is an important concern in cluster analysis techniques. Kim and Lim (1988) contended that the number of clusters may be determined by identifying a distinct mean-squared error of clusters as they pass from one solution to the other. However, to eliminate the challenges of determining the number of clusters and ease their interpretation, the k-means cluster technique was employed. This technique offers the advantage of determining the number of clusters before the iteration process. This was used because no standard objective selection exists, as there is no internal statistical criterion available for drawing inferences such as an F-test or t-test (Barbin & Mitch, 1998; Bergkvist & Rossiter, 2007; Hair *et al*., 2010).

This study formed four clusters by considering the sample size (72 responses). This was done in order align them to the typologies (analyser, defender, prospector, reactor) suggested by

Miles and Snow (1978), although the intention is not to validate whether these typologies exist in the South African construction industry but to have a number that will be illustrative and easy to interpret. The clusters that were derived, as well as the means and standard deviations for each variable, are presented in Table 6.36. There were altogether 16 construction organisations in cluster one, 25 in cluster two, 12 in cluster three and 19 in cluster four. Based on the results of the clustering, the mean and standard deviation was calculated for the strategic behaviour among the different groups. A mean comparison with the entire sample was carried out (with SPSS) in identifying the best strategic behaviours among different groups.

Table 6. 36: Groups derived from cluster analysis

	Cluster1 (n=16)	Cluster2 (n=25)	Custer 3(n=12)	Cluster4 (n=19)
Strategic attributes	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**
Differentiation strategy				
Achieving high quality beyond the requirements in the specification	3.81 (0.75)	4.68 (0.56)	4.17 (0.39)	4.79 (0.79)
Being highly responsive to clients' requests	3.50 (0.73)	4.44 (0.71)	3.92 (0.51)	4.05 (0.78)
Achieving on schedule performance in construction operations	3.75 (0.77)	4.76 (0.44)	3.50 (0.80)	4.05 (0.91)
Attempting to deliver constructed facilities ahead of schedule	4.06 (1.06)	4.68 (0.63)	3.50 (0.52)	3.79 (0.85)
Cost-leadership strategy				
Emphasis on operating efficiency (e.g. productivity in production or efficiency in outbound logistics)	3.13 (0.72)	4.40 (0.65)	4.67 (0.49)	4.05 (0.70)
Emphasis on efficiency of securing raw materials or components (e.g. bargaining down the purchase price)	3.94 (0.85)	4.12 (0.60)	3.67 (1.07)	4.21 (0.85)
Emphasis on tight control of selling/general/ administrative expenses	3.88 (0.81)	4.20 (0.71)	4.67 (0.49)	4.47 (0.77)
Emphasis on price competition (i.e. offering competitive prices)	3.19 (0.65)	4.28 (0.74)	4.50 (0.67)	4.11 (0.74)
Focus strategy				
Targeting a clearly identified segment (e.g. emphasising a provincial region or a specific group of consumers)	4.06 (0.93)	4.28 (0.74)	3.58 (0.90)	4.16 (0.60)
Offering specialty products tailored to a particular group of customers or users	4.00 (0.73)	4.20 (0.82)	3.42 (0.79)	4.11 (0.87)
Uniqueness of your products (e.g. unique function or design)	3.50 (0.63)	4.16 (0.80)	4.50 (0.52)	4.32 (0.75)
Offering products suitable for a high price segment	4.44 (0.73)	4.32 (0.80)	4.42 (0.89)	2.79 (0.53)

The ANOVA results presented in Table 6.37 illustrate the competitive strategy variables that contributed to the formation of the four clusters using the approach reported in Dikmen *et al*. (2009). Strategic behaviour with highest value in the cluster column makes the most contribution to the separation of the clusters. Considering each of the strategies, achieving on-schedule performance in construction operations had the highest contribution to the partition of the clusters formed under differentiation strategy. Placing emphasis on operating efficiency made the highest contribution within the cost-leadership strategy; while offering products suitable for a high price segment made the largest contribution under the focus strategy.

Table 6. 37: ANOVA of k-Means Cluster Analysis

	Mean Square			
Strategic attributes	**Cluster**	**Error**	**F**	**Sig.**
Differentiation strategy				
Achieving high quality beyond the requirements in the specification	3.766	.422	8.922	.000
Being highly responsive to clients' requests	2.950	.500	5.896	.001
Achieving on schedule performance in construction operations	5.701	.522	10.918	.000
Attempting to deliver constructed facilities ahead of schedule	4.859	.626	7.767	.000
Cost-leadership strategy				
Emphasis on operating efficiency (e.g. productivity in production or efficiency in outbound logistics)	7.096	.432	16.433	.000
Emphasis on efficiency of securing raw materials or components (e.g. bargaining down the purchase price)	.847	.668	1.269	.292
Emphasis on tight control of selling/general/ administrative expenses	1.764	.517	3.412	.022
Emphasis on price competition (i.e. offering competitive prices)	5.226	.504	10.370	.000
Focus strategy				
Targeting a clearly identified segment (e.g. emphasising a provincial region or a specific group of consumers)	1.360	.609	2.232	.092
Offering specialty products tailored to a particular group of customers or users	1.765	.657	2.684	.053
Uniqueness of your products (e.g. unique function or design	2.882	.507	5.686	.002
Offering products suitable for a high price segment	11.808	.492	24.002	.000

Table 6.37 presents those variables with the highest contribution to the partitioning of the cluster. This indicates that strategy is the key determinant of performance differentials in different strategic clusters (Dikmen *et al*., 2009). Offering or executing contracts for a high price segment has the highest contribution overall. This suggests that many of the construction organisations focused on government projects, with over 50% of procured contracts coming from the government (Dlungwana *et al*., 2002). Table 6.38 shows the background information of the sampled organisations, including the cidb grades, class of works, years of working experience, and size of the organisations in terms of number of permanent employees. Table

6.39 shows the differences in the impacts of all the constructs in performance among the clusters with all the constructs (also variables) showing insignificant F-values with exception of human resources and competitive strategies (see Appendix F5).

Table 6. 38: Comparison of background information of construction organisations

		Cluster 1	**Cluster 2**	**Cluster 3**	**Cluster 4**
Grades of organisations	Grade 7	44%	52%	75%	32%
	Grade 8	31%	24%	25%	16%
	Grade 9	25%	24%		53%
Class of works	GB	37%	48%	33%	26%
	CE	37%	20%	33%	26%
	GB&CE	25%	32%	33%	47%
Age (Years of existence of organisations)	1&5	6%	-	-	-
	6&10	12%	24%	41%	16%
	11&20	19%	24%	41%	26%
	21-30	25%	28%	8%	10%
	>30	37%	24%	8. %	47%
Size (No of permanent employees)	0-99	31%	28%	33%	21%
	100-199	37%	48%	58.33%	31%
	500 & above	31%	24%	8%	47%

Table 6. 39: Strategic clusters based on performance, organisational characteristic, strategies environment, resources and capabilities

Variables	Cluster 1 (n=16)	Cluster 2 (n=25)	Custer 3(n=12)	Cluster 4 (n=19)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	Sig.
Performance						
competitor's effectiveness	4.168 (.58)	4.260 (.57)	3.865 (.37)	4.175 (.53)	1.516	.218
Objective achievement	4.083 (.37)	4.207 (.34)	4.071 (.41)	4.210 (.25)	.841	.476
ROCE	200(213)	253. (483)	134 (182)	1321 (3242)	2.013	.120
Organisational characteristics						
Decision-making style	4.354 (.48)	4.373 (.45)	4.000 (.72)	4.316 (.46)	1.583	.202
Management style	3.557 (.67)	3.886 (.59)	3.869 (.49)	3.701 (.57)	1.219	.309
Organisational structure	3.875 (.51)	3.970 (.65)	3.917 (.36)	3.882 (.55)	.133	.940
Competitive strategies						
Differentiation	3.78 (.83)	4.63 (0.58)	3.773 (0.56)	3.948 (0.83)	24.470	.000
Cost-leadership	3.515 (0.76)	4.25 (0.67)	4.378 (0.68)	4.21 (0.77)	7.396	.000
Focus	4.00 (0.76)	4.24 (0.79)	3.98 (0.72)	3.843 (0.69)	3.158	.03
Resources and capability						
Financial capability	4.141 (.50)	3.910 (.42)	4.188 (.24)	4.132 (.60)	1.441	.238
Human resources capability	3.912 (.42)	3.987 (.42)	3.861 (.54)	4.271 (.35)	2.822	.045
Technological capability	3.354 (.36)	3.557 (.39)	3.544 (.46)	4.668 (.39)	1.378	.257
Dimensions of environment						
Competitive intensity	3.813 (.45)	4.120 (.47)	4.208 (.46)	4.079 (.50)	1.981	.125
Complexity	3.917 (.56)	4.080 (.61)	3.889 (.73)	3.912 (.61)	.424	.737
Dynamism	3.656 (.47)	3.920 (.58)	3.750 (.55)	3.724 (.63)	.833	.480
Munificence	4.172 (.43)	4.150 (.47)	3.917 (.51)	4.197 (.58)	.883	.454

Therefore, based on the results of the cluster analysis and ANOVA results shown in Tables 6.36, 6.37, 6.38 and 6.39, it can be inferred that four strategic groups or orientations are in existence within the South African construction industry among the categories of organisations considered (Grade 7, 8 & 9). The discussion here is based on the results from all the tables and the means comparison with the entire sample forming the basis for the identification of the exceptional behaviour of different clusters as used in previous similar studies (Dikmen *et al.,* 2009; Tan *et al*., 2012).

Cluster 1: This cluster consisted of 16 large construction organisations in South Africa across the three grades considered (Grades 7, 8 & 9). These organisations had slightly above average returns on investment annually, and their substantial length of existence gave them the experience needed to survive the intense business environment. Their main area of business included both civil engineering and general building works. The strategic focus of the group was on providing a product suitable for a certain segment of the industry. This implies that the group adopted a differentiated focus strategy to increase their share of the market and in the pursuit of performance excellence. In comparison to other clusters, the ranking with respect to the use of decision-making styles that enhance superior performance was higher in the group than in clusters 3 and 4. The group places higher emphasis on human resources capability to achieve their objective than did group 3. This may be as result of the flexible structure and style of making decisions which allowed subordinates to contribute to the decision-making process.

Cluster 2: This strategic group consisted of 25 construction organisations with an average yearly return on investment of R252 million. That value was higher than the average in cluster 1. The cluster had the second highest number of Grade 7 construction organisations and they pursued a strategy that allowed them differentiate their works or service from the industry competitors. They focused on achieving on-schedule performance in their construction operations and offered competitive prices to achieve optimum performance level. This group had a medium sized number of employees with good working experience, based on their years of existence in the construction business. This group had the highest ratings with regard to decision-making; this may be as a result of a simple level of communication due to the moderate size of organisation. This may have assisted the organisations in combining differentiation and focus strategy to enhance performance. However, they had the least financial capability based on the ratings. Hence focusing on civil engineering works that are

capital intensive may not be a good for this cluster. This was reflected in the class of work they focused on (48% general building).

Cluster 3: This cluster comprisesd twelve construction organisations and had the highest number of Grade 7 organisations (75%). There were no large Grade 9 construction organisations in this category. The cluster consisted of comparatively small construction organisations, most of which pursued cost-leadership and focus strategies. The major strategic attributes of this group was that they placed high emphasis on price as a way of competing in the turbulent environment. It was obvious by comparing the means across the cluster for cost-leadership strategy that organisations in this cluster adopted cost-leadership strategies to pursue their overall organisational objective of being a market cost leader. This cluster cut across all classes of works. They had a medium sized number of employees, which may have assisted them in finding ways to develop a sustainable growth strategy. It may also have simplified and speeded up decision-making and communication processes.

Cluster 4: The organisations belonging to this strategic group consisted of large construction companies with turnover above R1 billion. The majority of the organisations were leaders in the marketplace with a well-defined strategic focus and formulated strategy. When drawing comparison with other clusters, the level of experience and size of the employees was higher than other clusters. This strategic group exhibited higher strategy context as identified by Dikmen *et al*. (2009) in terms of resources and capability (with the mean values ranging from 4 to 5). The construction organisations in this category did not compete on the basis of price but strove to differentiate in terms of quality and innovative ideas. Many of the organisations perceived that they were operating in a highly munificent environment that supports a differentiation strategy. In addition, these companies had an abundance of resources that allowed them compete internationally. Almost 80% of them had over 10 years work experience in the construction industry.

6.6.1 Discussion of results and the impact of clusters

This study examined whether the identified clusters differed from each other with respect to the impact of environmental dimensions, sustained competitive advantage based on resources and capability, as well as whether organisational characteristics contributed to the differences in performance. One-way ANOVA procedure was used across the clusters for each of the

constructs, using the Bonferroni method. The Bonferroni method was used to test whether there were significant differences in the impact of the constructs on the clusters because this is considered the most robust of the univariate methods, most importantly in terms of power and control of Type 1 error rate. The Bonferroni's test indicated that there were statistically significant ($p<0.05$) difference across the clusters in terms of competitive strategies used and human resources and capabilities employed, while insignificant difference were noticed between the clusters with respect to organisational characteristics, performance and the environments. The research employed size and age of the organisations as control variables as used by Kale and Arditi (2002) to control the potential influence that resources and capability might have on the organisational performance, especially the objective measures. The discussion here is therefore centred on mean comparison between clusters as insignificant differences were observed as found in previous studies (e.g. Dikmen *et al*., 2009; Tan *et al*., 2012).

The results presented in Table 6.39 show that there were no significant differences in the performance among the clusters based on the outcomes of the one-way ANOVA test. All the strategic groups had high mean values for the measures of performance except cluster 3 that showed lower value in terms of competitor's effectiveness. This implies that there were abundant opportunities for organisations to grow. This is consistent with the assertion of the cidb (2012) that 75% of the total contracts procured in the public sector are being executed by these elite organisations which make up just 7% of all the registered construction companies in the country. However, using mean comparison, construction organisations in Cluster 4 outperformed construction organisations in other clusters in terms of objective performance (ROCE) and objective achievement. It is obvious from the one-way ANOVA procedure that utilising human resources capability to the fullest had significant influence on the performance of construction organisations, because of the significant differences between their means. Therefore, organisations within this strategic group confronted the problems posed by the intensely competitive environment in the industry through differentiation. They set themselves apart from their industry competitors by achieving superior quality, using skilled human resources with innovative ideas.

Construction organisations in Cluster 2 outperformed organisations in Clusters 1 and 3 in terms of all the measures of performance. They hadperformance levels above the mean values of Clusters 1 and 3, but lower than that of Cluster 4 in terms of objective and subjective

achievement measures. Cluster 2 was less capable financially than cluster 1 and 3, but exhibited strongest decision-making style than all the clusters. Cluster 2 confronted the challenges caused by the construction industry by placing emphasis on finishing projects ahead of schedule and by focusing on provincial regions or a specific group of consumers to attain sustained competitive advantage. Organisations in Cluster1 showed better performance than those in Cluster 3 across all the measures of performance, but their performance was lower than the sample mean values. They paid attention to decision-making process but possessed poor technological resources. Nonetheless, they addressed the industry challenges by offering products suitable for certain segments of the industry, which is a characteristic feature of a defender (Miles & Snow, 1978; Tan *et al*., 2012). Organisations in Cluster 1 operated in the same intense business environment as other clusters, but with poor technological resources. This perhaps accounts for their lower performance.

Organisations in Cluster 3 had the poorest performance rating in comparison to other clusters. It is apparent that these organisations placed much emphasis on tight control of selling/general/ administrative expenses and their operation efficiencies as a way of meeting the challenges posed by the construction industry. This perhaps led to poor human resources utilisation which impaired their performance. Their attention was on maintaining industry cost leadership without adequate attention to the mode of competition, due to the adversarial relationship that is often associated with the lowest tender syndrome in the industry (Kale & Arditi, 200; Price, 2003). Based on their performance level this cluster exhibited the characteristics of industry reactors.

The findings from this analysis are not consistent with those of Dess and Davis (1984), who found significant differences in the performance of manufacturing companies using Porter's generic strategies. The results however, show that there were differences in the objective measures of performance among the clusters; but this was not significant, as found by Reger and Huff (1993) when return on assets was used. Moreover, this study found that there were no significant differences in the reaction of construction organisations to the business environmental dimensions. This was in line with the findings of Tan *et al*. (2012), who found insignificant differences among four strategic groups identified in the Hong Kong construction industry. In almost all the constructs considered except human resources capability, most of the organisations exhibited analogous characteristics so that there were no significant differences between the clusters. This may be a result of the strict regulations and ordinances

posed by competition law in the country. This result was consistent with the findings of Warszawski (1996) who argued that human resources are the most critical resources and the key to construction organisations' success in the industry. This iwas corroborated by Sun and Pan (2011) who considered human resources as essential in pursuing a differentiation strategy.

Overall, these findings were consistent with Claver *et al*.'s (2003) research findings among Spanish housing construction organisations. Their research examined the linkage of strategy clusters and performance using Porter's generic strategies to identify four strategic groups; but the empirical results found no statistically significant differences among the clusters in terms of performance. Furthermore, the results imply that though different construction organisations pursue different strategies to achieve superior performance, the differences in performance can be partially explained by their choices in terms of mode and scope of competition, even when they function in the same environment (Kale & Arditi, 2002). Therefore, based on the performance of each strategic group, Cluster 4 can be characterised as analysers (having shown the highest performance). Cluster 2 and 1 are defenders and prospectors respectively (with performance relatively lower than that of analysers but approximately closer to each other) (Miles & Snow, 1978). Cluster 3 exhibited the characteristics of a reactor, with lowest performance and poor ability to respond to changes in the environment.

6.7 Summary

This chapter presents the results and the discussions of the analysis of the quantitative strand of this research using both descriptive and inferential statistics. The results presented here explore the hypotheses set forth in Chapters 4 and 6 of the thesis. The research findings give considerable empirical credence to the some of the hypotheses formulated: (H_1), which states that there is a significant positive relationship between competitive strategies (cost leadership, differentiation, and focus strategy) and organisational performance; (H_{2b}) which proposes that organisational characteristics moderate the strength of relationship between competitive strategies and organisational performance; (H_{4b}) which says there is a significant positive relationship between organisational capabilities/resources and performance; and finally, (H_5) which proposes that organisations that place emphasis on obtaining strategic fit with the business environment, and which adopt one of the generic strategies with appropriate organisational characteristics and resources/capability, will outperform competitors that do not. However, the results fail to support the hypothesised statements: (H_{2a}) which states that

organisational characteristics have a direct and significant relationship with organisational performance), (H_3) which proposes that environmental dimensions moderate the relationship between competitive strategies and organisational performance; and (H_{4a}) which suggests that there is a significant relationship between organisational capabilities/resources and organisational performance which is mediated by competitive strategies) within the study. The findings show that organisations with clearly defined strategy will outperform others that do not. It was also found that business environment acts as a moderator in the strength of relationship between competitive strategy and organisational performance but the interaction was not significant; and that organisational characteristics such as decision-making style and management style including organisational structure influence strategy and organisational performance. In addition, the study identified four strategic groups/clusters and the results revealed no significant differences in the performance of organisations across the clusters. However, significant difference was found in the human resources capabilities within the strategic groups as well as in competitive strategies pursued by the organisations. The study therefore, posits that construction organisations who exhibit good organisational characteristics, pursue a clear strategy with the right resources that fits its business environment will achieve superior performance.

CHAPTER 7
QUALITATIVE DATA ANALYSIS

7.1 Introduction

This chapter presents the analysis of the qualitative data obtained from case studies of individual construction companies. The data were analysed using explicitation techniques (explained in section 5.10.2) to examine the cases and compare them. The aim was to identify discrepancies and similarities in organisational characteristics, competitive strategies, resources and capabilities; and investigate how these factors interact with the business environment to affect organisations' performance. The purpose of the qualitative analysis was to provide further insight and in-depth understanding regarding the constructs of the study, and to triangulate the quantitative findings reported in Chapter 6. The data were related to a conceptual model linking the constructs and showing their impact on performance. This model was used to make generalisable statements concerning the empirical findings from the case studies.

7.2 Case study analysis: Semi-structured interview

Four construction organisations constituted the case studies being analysed in this section, these were identified with the help of the cidb database for registered contractors in South Africa. Qualitative data were collected through semi-structured interviews with senior managers at each organisation (See Appendix E for the outline and transcript of the interview questions). The interview transcripts were analysed with the aim of formulating a comprehensive understanding of how organisational performance is influenced by competitive strategy, resources and capability, organisational characteristics, and the business environment.

In this chapter the findings are presented using the approach adopted by Awodele (2012). First, each case is discussed in turn. Background information about the case is presented, followed by the findings from the data analysis on that case. Secondly, a composite summary or cross-case analysis is presented to compare the cases and draw conclusions from their similarities and differences.

7.2.1 Case study 1: Organisation W

7.2.1.1 Background information

Construction organisation W was established in 1984, as a Cape based Construction Company with expert knowledge on road construction and rehabilitation. While the company's core focus is on national and provincial arterial roads and urban highways, its expertise extends to urban infrastructure. The company thus also undertakes industrial, commercial, residential and sport building projects. Virtually all employees are shareholders in the company. Organisation W presently employs approximately 2000 staff consisting of 650 employees on its monthly payroll, 1350 hourly employees, and limited duration contract employees. The organisation has a cidb grading of 9CE (Civil Engineering) for civil engineering projects and 9GB (Building), which enables the organisation to tender across the full value continuum of contracts on offer in its field of expertise. The organisation is currently on BEE level 2 and its Civil Engineering is ISO 9001 accredited. The organisation operates throughout South Africa and has recently expanded its market focus to include certain SADC countries. The organisation's style of management recognises that the construction industry is heavily dependent on people, and encourages independence and personal responsibility amongst its staff.

The person interviewed at W was the company's Chief Executive Officer (CEO).

7.2.1.2 Organisational characteristics

In order to establish how the characteristics or contextual features of organisation W influence its business plan and performance, the CEO was asked about the making and implementation of strategic decisions within it. The CEO was also asked about the influence of management practices and organisational structure on the decision-making process. The CEO explained that the line of command within the organisation flows from the top management of the organisation (the board of directors) to the senior and site managers, and then to the non-managerial employees, using various means of communication such as meetings and memos. He also presented the implementation of the management process as being unofficial and casual rather than ceremonious and inflexible. The CEO asserted that a mixture of mechanistic and organic structural approaches to decision-making is employed to communicate decisions to employees. Decision-making is maintained as high as possible and the line of communication

is vertical. However, in some cases authorities control the tasks to be delegated by making the line of command lateral:

> *"I would say in a way the decision is centralised in the head office, but you can be asked to make decisions on a project you are handling as an engineer. Because each construction/project site is run like a company or business, therefore, you have the autonomy to make your decisions because each site has its own profit and loss."*

Both participative and directive management practices are employed, but decisions on the financial performance of the organisation are the prerogative of the board of directors.

> *"We work in teams and our decision-making depends on what decision we are to make….Sometimes a short-term decision is a like one-man decision, if it is a decision one is to make on the field as an Engineer, but for long-term strategic decisions, we work in teams but it is the prerogative of the board of directors."*

Based on the respondent's claim that employees are sometimes allowed to participate in decision-making process, the CEO was asked about the style of decision-making in use within their organisation.

> *"As a company we are conservative and we don't make emotional decisions. Genuinely, our decisions are based on this fact and this rational logic. We look at company's culture and structure before we make decisions, it takes longer time. We are very conservative, Engineers are conservative by nature. Smiles…."*

The CEO contended that the structure adopted by organisation W supports their business strategy and plans. This has enabled the firm to survive in the construction industry for over three decades, with annual turnover considered to be satisfactory by the organisation.

7.2.1.3 Business strategy

The CEO described W's business strategy as based on its mission which guides the approach the organisation adopts in winning contracts and managing their business:

"We are not a company that pursues growth for the sake of growth—as long as we are able to deliver for our clients, ensure that our staff are happy and maintain a competitive position in the market at the size we are now then we are accomplished".

When asked about who implements the strategy and how often the business plan is reviewed, the CEO stated that the business planning process is undertaken by three tiers of decision-makers, and that the plans are reviewed three times a year.

"We have three tiers in doing this. We have the board meeting which is the first level of meeting; strategic meeting (board plus senior managers) and the site management (board plus site managers). Those three tiers develop our policies. Strategic meeting, ja is a meeting of about ten to fifteen people, who try to study the market and formulate policy about where we are going".

"We meet for the strategic meeting three times a year and we review it every time. You never ignore the review all the time, because politics change, market conditions change and things are changing in the country….."

The business strategy that was apparent in the interview was a cost-leadership approach combined with quality differentiation. The respondent argued that the construction industry is characterised by the awarding of contracts to the lowest tenderer. Hence, to remain in business the organisation has to win more contracts, as against their current status of winning 3 out of 10 contracts tendered for.

"It is all about being cost efficient. The nature of the state procurement process is 90% price and 10% black empowerment. The guy with the cheap price is considered; our own business is built around the procurement process and this is very clear and clean. If you are not cost effective and productive you go nowhere, our principle is not that I want to be lowest tenderer or be in the middle, we do work at the cost we think we can do it. If your cost goes too bad, that might be a problem……."

"…so in terms of cost and quality, we have good quality control unit that monitors the quality, and we work based on the principle that when you work and you do it right,

you don't have to do it again and this makes it cheaper. I think it is quality differential..."

7.2.1.4. Strategic analysis

Strategic analysis is significant in determining whether the capability and resources at an organisation's disposal are suitable and adequate to support its business strategy. Therefore, the CEO was asked questions on the organisation's resources, business environment, competitors, relationship with their clients, and nature of the market in which the organisation operates. The CEO stated that W operates across South Africa:

"We operate all over South Africa. We like working in the Eastern Cape very much, we like working in the Western Cape. We worked in North-West but haven't worked much in Limpopo. Most of the areas where people don't like working that is where we work. In fact, I was in Namibia last week".

The CEO was questioned about the industry environment, its trends with respect to their competitors. He responded that the construction business environment in South Africa is competitive and full of opportunities.

*"We also, analyse our industry environment in terms of growth and the current happenings in the industry. The environment is competitive and there are jobs…"*we *have taken a lot of work that will carry us for the next two years". However, our major competitors are the listed companies, all their financial information are in public domain, so we just go on the internet, download their report, information and analyse it or use software. That is what we do, you compare yourself with them".*

The CEO's comments suggested that the resources and capabilities of the organisation revolve around strong financial strength, people, and capabilities in handling a certain class of work. The CEO acknowledged that quality and cost effectiveness cannot be achieved by the organisation without capable people and good financial standing. He indicated that the core competitive strength of the company is its expertise and experience in road construction.

"*I think our strength is the factor that we are good road builders. 90% of our organisation turnover is from road building."*

"... you achieve quality differential if you have got people because without them you go nowhere……"

The CEO was asked to reflect on the relationship between W and its customers, and on customer perceptions of the organisation. He claimed that the relationship with customers is generally cordial. However, he emphasised that W's reputation has been dented as a result of being embroiled in an anti-competition commission investigation:

"I think it's quite a good view. I think we have good relationship with our customers and if there is anything we do and they don't like they tell us. We have got one and a half order books but you keep on looking for jobs, if you don't get then you retrench people. I think the perception is good but we have got a knock on our reputation by the competition commission involvement. We were dragged into that and we thought we are innocent, but has done a lot of damage on our reputation, we need to spend a lot of time explaining that to our clients, what the whole story is all about but it will take time for people to build honest….. We have the business for long and we have very clean and honest, in fact we took Free State to court on two or three occasions because we want to keep them honest".

7.2.1.5. Performance improvement/measurement

Business performance measurement and improvement is a major issue for construction organisations. An effective manager does not just measure what is easy to measure; appropriate measures much be designed for all aspects of performance. Without a good design method, poor employee performance can result. Therefore, the interview probed how the organisation measures performance to ensure that its stated goals and objectives are aligned with each other.

"Ja, okay we use do consider performance measurement important- one will be people management, one will be productivity, and growth of your staff. We do tell our workers what the key performance measurements are and we measure them against the target to get the feedback. It is not about money, it is about productivity, growth of people and

about learning and programming. Then that will end up giving him a balanced scorecard but the scorecard in terms of what you used, but that is our scorecard. That is what we needed as a good manager or good foreman."

When the CEO was asked about the model of performance measurement used within the organisation, he asserted that W employs SWOT analysis. He further explained that the organisation strikes a balance between financial and non-financial measures, because both are equally important to organisational growth and improvement.

"We use SWOT analysis system and we do that frequently within the organisation and for all the staff twice in a year. The managers do that and we know all our workers and we are sure they can perform. We see whatever they are doing"

"I like to say in a more management terms, non-financial stuff because we have a couple of people here that give us nothing but good work. OK, for me I spend more time on non-financial stuff and stuff like that, but you have to balance the two. If you don't manage your financial stuff, the company goes bankrupt, and so also if you don't get people. To say which one is more important, I think you balance both".

7.2.2. Case study 2: Organisation X

7.2.2.1. Background information

Organisation X was founded in 2001 as a limited construction and property development organisation. As an independent company it has played a significant part in the infrastructure development of South Africa, specialising in township infrastructure, road construction and road rehabilitation. The organisation started as a civil engineering company and provides a wide spectrum of civil engineering, mining, earthworks and road construction services throughout South Africa. The company has a particular focus on bulk earthmoving, road construction and rehabilitation, drainage, crushing, township infrastructure, road surfacing and mining operations. It also operates a commercial quarry, and has a building division, but its major work is road construction and earthworks. The organisation has five shareholders in the business; four of them having started the company and who are still in the business together. There are 78 staff members, over 200 operators and skilled labour, while hourly rated local labour are between 500 and 600 people depending on the project. The organisation is grade 9

CE accredited by the cidb, with BEE status of level 4 contributors. The ownership is 31% BEE or HDI and the balance of 69% is white.

The person interviewed at X is a Director within the firm.

7.2.2.2. Organisational characteristics

The semi-structured interview explored the impact of organisational structure, decision-making style and management practice within the organisation. The Director asserted that the structure of his organisation is flexible. He noted that since the organisation has a relatively small number of staff and does not have a large head office, decision making can be both centralised and decentralised:

> *"Important decisions or strategy of the business is centralised and it is the function of the board of directors, but each site that operates obviously take their own decisions which has to come through one of the directors for approval."*

The Director acknowledged that different management styles could bring out the best in employees, achieve organisational goals and maintain competitiveness in the industry. However, he stated that X uses a democratic approach that is more participative, because the company sees people as being key to meeting the organisation's long-term objectives.

> *".....we use a democratic style, because we work as a team and we don't use authoritative or dictatorship approach. Being a medium sized organisation we have open relationship with all our employees, we discuss things and we operate democratically. We listened to people's view and what they have to say and we take decisions according to that*".

> *"… definitely, everyone has certain responsibility for certain things and they must make decisions accordingly, but financial decisions are taken on the board level".*

7.2.2.3. Business strategy

The Director explained the organisation's overall corporate strategy with respect to organisational objectives and the mechanisms put in place to achieve them. He described the firm's strategic management approach as fairly informal. The organisation has no officially

documented business plan or mission statement. Strategies are conceived in the heads of the directors but are not formalised:

> *"We have board meetings and we monitor where we are going and how we get there. This is monitored in this way, but yeah, the big economic picture in the country, in the world and the global financial problems does not allow us to fulfil these strategies".*

> *"Although we have a business plan and strategy, but in a construction industry that is very difficult you don't know the job or award you are going to get, you – through economic fluctuations which is also partly political... The strategy is how you see the company going and this is not quite easy to write down and monitor on a quarterly basis. All the board members have their own important ways of how to achieve the strategy."*

The Director also explained that because of the uncertain nature of the construction industry, his organisation focuses on those areas in which they have expertise so as to remain in business. This implies that the organisation uses a focused strategy with an eye on being cost efficient.

> *"We don't have too much overhead structure and we try and strategise on what we know, try to procure more jobs and we take decisions on a weekly basis on what we are going to tender for or not to tender for, that is how we move forward. We try and keep it in one general thing, specifically, we are into road rehabilitation right now and that is the equipment that we purchased now, we are all quite focused".*

7.2.2.4. Strategic analysis

The strategic evaluation of the organisation was conducted by questioning the Director on how informed organisation X is about the business environment in which it operates. He indicated that the organisation has a good understanding of, and interaction with, its environment. He claimed that the company's awareness of the business environment has helped it to improve its effectiveness and efficiency, by increasing its capacity to organise and reorganise its resources judiciously.

> *"Yeah, the industry is quite big but there are few big companies in the road section, so the trend is sort of mapped, you will know when there are jobs or more works coming*

out or a decrease in jobs. You will see this and we consider all this in our board meeting. The analysis, you just get a sort of feel of what is happening".

"When we look at the environment now, it is very competitive. Though there are different areas and locations where there are works, but I will say it is more competitive".

Formulation of an effective business strategy requires that the company obtain the right information and feedback from the customers. When this was probed regarding the competitors, the Director explained that organisation X does not seek information about its industry competitors, but does obtain feedback from clients to assist the organisation to improve its performance.

".....we don't actually obtain any information about our competitors, but for the listed companies you see the financial records but we don't actually get an insight into what their problems are and how they do on projects..."

With respect to feedback from customers or the public about the work, the Director explained that holding site meetings on a monthly basis with the client has become a culture within the organisation, and this has helped the organisation in getting responses from clients:

On every project we have a monthly site meeting where the client is involved and we do discuss it and get informal feedback. When the project is completed we send out questionnaires and we do get official information. We do that on projects ranging from 6 to 24 months duration. So you get your feel from the client by interacting with them during the project and that is how we get information…we use the information to improve our performance if it comes out negative. So it is more of corrective and performance rectification.

The Director was asked questions about the strength, weaknesses, opportunities and threats to organisation X's survival. He responded that the organisation's strength lies in the support system it has in place for all project teams, and its ability to pay attention to details; while the opportunities in industry revolve around government's declared intention to spend more on infrastructure provisions. He identified weaknesses in terms of environmental challenges as being lack of continuity of work, and commitment of time and resources to tenders without

winning them. Major threats include delays in payment, high levels of corruption, and long procurement periods.

> *"The corruption level with government work is too high. It is difficult to actually know where you are going, and if you don't know the decision-making will be a problem. So you ultimately obtain more tenders, more than you work, and if you don't do, you end up not getting works to do. Another problem is when you tender for a job after committing time and resources, you don't get anything and later the same work has to be tendered for again probably because they can't determine who the lowest tenderer is. Delay in payment is a major issue, when Limpopo was placed under administration, it took over a year before we got paid and a lot of projects just stopped".*

7.2.2.5. Performance improvement/measurement

The Director believed it is essential to measure the organisation's performance and determine how effectively the informal business plan has enhanced the organisation's performance. He argued that performance can be explained by examining how internal and external elements influence the organisation or contribute to its successes and problems. Hence, understanding the interests of different stakeholders and the impact of their interests is considered as the most significant problem-solving ability. When asked about measures of performance used, the CEO asserted that:

> *"I think you measure performance financially, ultimately, it is not okay for clients and employees to be happy and you are not doing well financially, you will just close your business down. Again it depends on where you are going and type of work you have in hand, but number one key on performance measure is financial performance. This is because if each project is managed well and the profit margins are looked at and you will know what you tendered as compared to what you actually realised on the project".*

The interview revealed that the Director was not aware of alternative models for measuring performance. He seemed to believe that the only necessary and valid measure of performance is financial success:

"Yes definitely, the profit margin, the turnover – turnover is a big thing, it shows the balance of your asset value, your BEE's factor, the staff and all your financial indicators".

7.2.3. Case study 3: Organisation Y

7.2.3.1 Background information

Organisation Y is one of the large construction companies in South Africa with over 12000 employees. It is able to deliver a range of projects of any scale to multiple clients in diverse markets. The organisation is a Level Two B-BBEE contributor. The organisation is registered on Grade 9 of the South African Construction Industry Development Board (cidb). This allows Y to tender for any size of project – there is no upper limit on the scale or value of works to be undertaken. The organisation's business units operating across South Africa include Structures (large concrete projects, geotechnical and marine works); Building (including mass housing); Roads, Pipelines and Mining Services; Mechanical & Electrical (M&E); and Power. They also have the experience and expertise to design and construct deep level foundations and support solutions in the most challenging geological conditions. Organisation Y has a multitude of clients in diverse markets in both the private and public-sectors. The group is listed on the Johannesburg Stock Exchange (JSE).

The person interviewed at Y was a Director, Divisional Head and policy maker within the group.

7.2.3.2. Organisational characteristics

In terms of organisational structure, decision-making and management practices, the Director asserted that the organisation adopts a mixture of a centralised and decentralised structure to decision-making. He also commented further that authority is delegated, but that such delegation is monitored to ensure that wrong decisions are not made.

"It is a decentralised operation to a large degree. This is one of the anomalies of all companies, it is a cycle of decentralised and centralised, someone makes it centralised and another person comes and make it decentralised. It is an on-going cycle, and with the interaction I can tell you because it continues that way, tells me that there a very thin line between these two systems. The reason why our company operates in a decentralised manner is because this how the mother companies operated, it started off

as smaller companies each on its own slowly but surely we became a group, but because it was still running on decentralised basis, with the company, and you have different companies. When we became a group on the stock exchange, we centralised partially at the top but the actual operations are still running as a decentralised structure."

With respect to the management practices within the organisation, the Director argued that one cannot apply a uniform style of management in a large organisation comprising different groups, and with over 100 directors. He thus concluded that the style of management is flexibly determined by individual managers, based on the context and the people being managed, rather than being standardised across the organisation:

"My style is definitely not, um, how do you put it, it is more of consultative type of management. I will rather speak to the people and link with them and see what their philosophies are and how they want to do things, and then look for...., it is more of a combination of different styles because you also need to understand the individual that you are working with and that must also bring the style of management that you need to adopt for that individual…"

7.2.3.3. Business strategy

The Director was questioned regarding the organisation's business strategy and plan, and how this had helped the organisation grow to the point of being listed on the JSE. He stated that the organisation did have mission and vision statements to give it direction. The Director also emphasised that the organisational business strategy is defined by people, and efficient management of people across the groups make the implementation of business plans easier.

"On an annual basis, we as a business need to assess our way forward, so coming to the end of the year, our different divisions in the business will get together and strategize how they want to go forward. We look at things like what work we are targeting, we look at the client we want to work with, we look at opposition, we do the traditional SWOT analysis, and we as a group of managers get together to find what is best way forward"

The Director claimed that organisation Y has a well written and documented business plan, which is implemented by the directors and divisional managers/directors to ensure the overall business goals of the organisation are met.

> *"I start off with the executive board, with those directors get together and have the strategic plan drawn, they come up with a broad framework, the broad framework is delegated to our business units and divisions and through that, the team then plan the way forward. And then, it is up to the division to implement those plans on the ground"*

The interviewer examined the nature of business strategy employed by the organisation to enhance their performance and support the achievement of the mission and vision statements of the organisation. There was no clear business strategy stated by the Director. This seemed to be because the organisation is large, and different divisions or groups adopt different approaches to achieve their objectives.

> *".....the first thing to realise is that in our group we have different divisions and to give an example of that divisions, you can have concrete civil divisions, you can have the road civil division…… every business must have two aspects, we have got to have a market that you want to target, and you have got to have an edge in getting into that market, so what is the focus going to be?"*

7.2.3.4. Strategic analysis

Defining the organisation's goal and problems requires that a strategic analysis be performed. This consists of business environment assessment, competitor analysis, competitor's effectiveness of mark shares, and dissecting the organisational resources and capability that support the organisation's business plan. It is the responsibility of an organisation's decision makers to analyse these factors with attention being paid to specific elements that will impact on the organisation business plan, and which may have consequential effects on organisational performance. The interviewer thus asked the Director in which geographic or provincial region most of the organisation's work is done. . The Director stressed that organisation Y operates in all the provinces in South Africa and also expands its business focus to SADC and other African countries.

"We are a total national company, we have offices in Johannesburg, Cape Town, Durban, as the major centres, and we are operating totally within South Africa. But we are also very strong Southern African Company, so in all the SADC countries we are operating in, we also have offices in Swaziland, in Maputo, in Gaborone and in Zambia, Lusaka; so those are the areas where we currently have offices. We have done work in Sierra Leone, Ghana, we currently working in Nigeria, Kenya and Tanzania; we are African company, Sub-Sahara Africa"

When queried on the nature of the business environment and how the organisation obtains information to it organisation grow, the Director acknowledged that the business environment is competitive, and that only organisations with correct information and viable strategy can survive the turbulent environment.

"We need to understand how the market is, and we need to understand who our competitors are. So we need to know what are our strengths or weaknesses are by comparing with others"

The Director explained that Y uses the SWOT approach to analysing the organisation. Based on this analysis, he claimed that the organisation's weaknesses lie in getting quality people to meet their customers' demands, while the strength is in training to get quality people to do the job and opportunities lie in their growth from a small business to a listed company with over R8 billion annual turnovers.

We implement intensive development and training programmes in an effort to constantly raise our performance and set standards at the level we consider in keeping with our approach of delivering quality products to our clients"

7.2.3.5. Performance improvement/measurement

The Director stated that the organisation maintains a balance between objective and subjective measures of performance so as to have a comprehensive picture of the success of their business plan. He argued that being a listed company means that investors want a return on their investment, making financial measures crucial. However, clients also want satisfaction, and without people success cannot be achieved. Hence subjective measures of performance are also important, and there must be a balance between these two measures.

"It's all of them, both subjective and objective measures. The very first one is the return on investment; the investors want a return on their investment that is point number one. The second one has to be the client because without the client we go nowhere….. Then of course the people within the organisation, they are key to the success, so you need what they see and engage their feedback, which we do as well"

"….that is why we focus on the big concept of investors, the client and the people in the organisation rather than what are our accounting measures are."

The Director was questioned about the performance measurement models being used by organisation Y to capture both financial and non-financial measures of performance. However, it became clear that there is no specific model in use by the organisation.

7.2.4. Case study 4: Organisation Z

7.2.4.1 Background information

Construction organisation Z was established in 1963 as a family business that specialises in government contracts in the Western Province. The organisation has grown from strength to strength and now covers the full range of construction work, both large and small. The organisation is one the oldest in the Western Cape with over 100 full time employees on its payroll. The organisation is Grade 7 PE on the cidb grading of contractors and with BEE status level 1. The company is 40% black owned and 60% white owned.

The CEO of organisation Z was interviewed.

7.2.4.2. Organisational characteristics

The CEO was asked how the decision-making structure and management philosophy within Z supports its business strategy. She argued that the organisation's characteristics have been supportive and have helped the organisation to survive for almost five decades. The decision-making is centralised and there is no formal written business plan to follow.

"The decision-makers are myself and my two partners and the financial guy as well. It flows from the top management down to the lowest employee in the company".

The CEO stated that authority is not delegated but instead vested in the management staff of the organisation to get work done and accomplish the objectives of the organisation.

> *"No, we don't delegate responsibilities, they will only do their work but we all look at decisions such as tenders before they go out for us to be competitive. But normally I and then the other two guys, though they are always on the site and I am always in the office, we will look through it as well".*

Regarding the management approach being used by the organisation, the CEO asserted that the organisation typically uses a consultative approach in arriving at decisions.

> *"We use more of consultative, as you can see my husband that just took the keys now, he's got experience more than any of us so he consults with us. We look at issues, we ask questions like do you think this is gonna work, what do you think. We do that often".*

The CEO further posited that organisational control should lie with the owners of the organisation, and that this will guarantee that the organisation's management would pay attention to administering the business more effectively and efficiently. If the control of the organisation is decentralised, the subordinates may not show the necessary enthusiasm to raise their level of efficiency and improve organisational profits.

7.2.4.3. Business strategy

The CEO viewed the competitive strategy as the overall mission statement used by the organisation to give directions.

> *"Yeah, the mission statement is that our employees are important, the quality of our work and our name is very important".*

When the CEO was asked about the strategy and techniques used by the organisation to win contracts and execute these to meet clients' requirements. The CEO believed the performance, cost effectiveness and the ratings of the organisation has been assisting the organisation in winning more contracts, she has this to say:

"You have to keep your ratings high. You have got to make sure work is coming in and keep a performance record and that is very important. But you can't perform unless you check on that, you can tender, your price is good but they can say you know what and everything just falls apart. So we have to keep our performance up, you know we are very aware of the end product".

However, from the interview it appeared that the organisation tries to differentiate itself through quality performance, and at the same time strives to be cost effective to win more contracts:

"Quality and Cost-leader play a very big part and we try to keep the two"

7.2.4.4. Strategic analysis

The CEO stated that organisation Y performs strategic analysis of its business environment. It performs internal analysis to identify its weaknesses and strengths; and it analyses the external environment to tap business opportunities and reduce threats. The CEO was asked how this analysis is used to help the organisation remain competitively viable; and also how the company uses its resources and capability to reduce threats and improve its strengths, considering the opportunities in the turbulent environment. In response the CEO affirmed that the organisation uses SWOT analysis to manage its strategy. The organisation is based in the Western Cape and thus it focus is on the Western Cape construction business market. The CEO posited that the strength of the organisation lies in its good relationship with client; structure and composition as a family business, while the weaknesses revolve around weak finance and number of permanent staff within the organisation. The threats are corruption, and the 'unlevel playing-field' for organisations that results from the BEE requirements (which advantage some organisations over others).

"Well I think our strength is that we run the company like a family business, so we are the owner have our hands on. My partners and I are aware of the happenings at all time and we have effective management control".

"There are some instances where the new entrants into the market are a threat. Because it is unfair, based on BEE status so many of them win contracts and many of our own employees are foreigners who do not have permits and on that basis we can't compete".

7.2.4.5. Performance improvement/measurement

The CEO considered financial measures of performance as the major means of assessing Z's business plan and strategy, because these measures provide an overall picture of the organisation's financial position.

> *"I think we measure our performance with our balance sheet every year. We measure financially. Because quickly you can see when things get negative, when things are down and when they are dragging"*

The CEO affirmed that organisation Z does not adopt any performance measurement models but only measures performance by looking through their financial records.

7.3 Contextual elements/Document analysis

In order to verify in details the assertions made by the respondents in all the cases above, operational contextual elements were examined. The documents analysed include organisations annual reports, financial records for the last 5 years showing their turnover, the business status and operating areas that the companies focused on. All the organisations were construction companies based within the Republic of South Africa and who operate at least in one of the three provinces considered by this study (Gauteng, Western Cape and Kwazulu Natal). All the organisations have an established reputation in all the geographic market except organisation Z that only operates in the Western Cape. All the organisations studied varied in size, nature of project they take on and type of works, but they are all categorised as large organisations based on the cidb grading systems (within grades 7 and 9). The organisations used different forms of procurement systems such as the traditional system as well as concessional arrangements to win contracts. Table 7.1 gives the summary of the contextual elements analysed while other attributes such as management style are outlined in Table 7.2.

Table 7. 1: Summary of organisational document analysis

Organisation	cidb Grading	Management philosophy/mission statement	Business operating units	Financial record	History
W	9CE & 9GB	"Our management philosophy recognizes that the construction industry is heavily dependent on people and encourages independence and personal responsibility amongst its staff. With this in mind, management has tasked the human resources and training division with ensuring that all employees are afforded equal opportunities in the fields of training, career guidance, mentoring and employee benefits"	Varied projects: road construction and rehabilitation; urban infrastructure	Average annual turnover of R112.6M; finance growth rate of 13.86%; 2000 staff consisting of 650 employees on its monthly payroll and 1350 hourly employees	Established in 1984
X	9CE	"Our organisation has over-arching measures to consistently monitor performance and aims to empower employees to live its corporate values. Quality management is the cornerstone of our operational culture and business approach"	civil engineering, mining, earthworks and road construction services; and township infrastructure	Average annual turnover of R46M; financial growth rate of 19.5%; 278 full time staff members, casual labour are between 500 and 600	Established in 2001
Y	9CE & 9GB	"We aim to become the preferred construction partner for all of our stakeholders. Our professional conduct will establish a track record of industry excellence. Shareholder value will be maximized by building a sustainable business presence in Africa and targeted international markets. We will create a desirable place of work, a natural home for creativity, enthusiasm and personal safety"	Varied projects: Structures (large concrete projects, geotechnical and marine works); Building (including mass housing); Roads, Pipelines and Mining Services; Mechanical & Electrical (M&E); and Power.	Average annual turnover of R5,9Bn; financial growth rate of 15.25%; Over 12000 employees	Established more than 40 years ago
Z	7GB	"Our mission statement is that our employees are important, the quality of our work and our name is very important. We also striveto do our part on community upliftment aiming to make lives of our staff and their families more rewarding and enriching"	Full range of construction work, both large and small	Average annual turnover of R29.42; financial growth rate 15%. Over 100 employees	Established in 1965 as family business

CE- Civil Engineering; GB- General Building

7.4 Cross case analysis and discussion

The overall aim of this research was to contribute to our understanding of the sources of performance heterogeneity across construction organisations. Chapter 3 explained the key research constructs, or factors that are hypothesised to affect performance: organisational characteristics, competitive strategies, resources and capabilities, and business environment. The complex relationships between these constructs were investigated in Chapter 6, using quantitative data obtained through a survey of construction company employees. The qualitative data reported in this chapter was intended to shed additional light on how these constructs affect performance, thereby providing methodological triangulation of the results from the quantitative data analysis including á *priori* knowledge (Creswell & Plano Clark, 2011; Holt & Edward, 2010; Lewis & Thornhill, 2009).

The key to interpreting the qualitative findings and applying them to the research questions of the study, is the systematic comparison of different companies (Awodele, 2012). Thus the four cases were compared to ascertain areas of convergence and/or discrepancy (Creswell &Plano Clark, 2011). The cross-case comparison was structured using four themes based on the outcomes from the theoretical deductions: organisational characteristics; business strategies/plans; strategic analysis; and performance. Sub-themes were also identified but they are not entirely similar across the cases as itemised under each theme (see Table 7.1). The comparison of the cases is discussed with respect to these themes.

Organisational characteristics. This consists of the decision-making style, structure of the organisation decision-making and the management style.

Business strategy. This includes organisation's business focus and policies and the competitive strategies pursued to achieve their objectives.

Strategic analysis. This includes the external environment opportunities, threats and organisational internal environment in terms of resources and capabilities and weaknesses.

Performance measurement. This includes financial and non-financial measures of performance

Table 7. 2:Themes and sub-themes from the case study

	Organisations			
Themes and sub themes	**W**	**X**	**Y**	**Z**
Organisational characteristics				
Decision-making style	rational and logic, analytical, directive	rational and consultative	Rational;, directive, consultative, behavioural	Directive
Organisational structure	Decision-making is centralised; Line of command is vertical; Decisions are taking by the superiors- Board of directors; unofficial and flexible; Mixture of both formal and informal structure; limited delegation of authority	Mixture of centralised and decentralised approach; Flexible structure; Management take financial decisions	Mixture of both centralised and decentralised, but centralised to a large extent	Centralised; Top-down line of command; Occasional delegation of authority.
Management style	Employees are allowed to participate in decisions making at certain level;	Democratic and participative	combination of different styles	Consultative
Business strategies				
Business focus and policies	To be competitive in the market; sustain business plan and achieve client satisfaction; employees satisfaction; formal policies making system; regular meeting to review formulated policies	To be competitive; Informal approach to policy or strategy formulation	Well-defined mission statement; Formal strategic business plan; Constant review by board of directors; implementation by divisional heads.	No formal written business plan; Family business
Competitive strategies	Cost efficiency, quality differentiations	Focused on road section, cost, quality differentials	Target different market, differentiations	Quality; Cost-leadership
Strategic analysis				

Themes and sub themes	**W**	**X**	**Y**	**Z**
External environment: Opportunities	Competitive advantage; availability of jobs; Geographic diversification; Market expansion	Government spending on infrastructure; Joint venture opportunities	Niche market expansion; providing value to our investors; continuous growth;	Regional concentration; Continuous improvement and growth; strong client base and good reputation
Threats	Corruption; delay in payment; prolong procurement period; increased competition; Economic environment; Reputation of organisation after anti-competition commission enquiries	lack of continuity of work; Tender cancellation; corruption in the process; Delay in payment;	Market dynamism; maintaining the growth achieved; Achieving returns on investment	Corruption; Legislations; Lack of continuity of work; Delay in payment
Internal environment: Resources and capabilities- Strength	Effective management and leadership skills; Financial resources; Quality of product or service; Stakeholders' relations; employee quality; Staff training; Low staff turnover	Attention to details; teamwork; relationship with customers and staff; on-job training and mentorship	Feedback from client; quality of work; staff development and training; style of management;	Structure and size of the organisation; Composition of the organisation;
Weakness	Lack of skill employees; organisational structure and size; Perception of the organisation; Maintaining projects without rework/recall	Organisational size and structure; Lack of permanent staff; Market awareness	Organisation size and structure; unavailability of quality workers; Ensuring continuous performance of employees	Weak financial resources; Lack of permanent employees
Performance measurement	Financial and non-financial measures; No of contract won; No of accidents on the site; business performance comparison with competitors	Mainly Financial measures;	Non-financial measures such as client and employee's satisfaction; Financial-return on investment; Health and safety records	Financial measures (organisation's balance sheet)

7.4.1 Discussion

The essence of mixed methods convergent parallel designs used in the current study was to identify the determinants of organisational performance in the South African construction industry by integrating the findings from quantitative and qualitative phase. In the quantitative phase (covered in chapters in Chapter 6), five main constructs identified deductively from theoretical perspectives were found to contribute to organisational performance (organisational characteristics, resources and capabilities, business environment, strategy and performance). In the qualitative phase presented in this chapter, the multi case study that was analysed had four main themes based on á *priori* knowledge: of organisational characteristics, business strategy, strategic analysis (resources and capability, business environment) and performance measurement.

The way that quantitative and qualitative findings emphasised the importance of organisational characteristics, strategies and resources and capabilities in enhancing organisational performance were in line with the fundamental ideas of the integrated contemporary theories (IO, RBV, Contingency and the dynamic capabilities) (Barney, 1991; Porter, 1980; Parnell, 2013; Teece *et al*., 1997) as discussed in Chapter 3. In the qualitative phase the respondents recognised that the business environment influenced their business however they did not place the expected emphasis on how the environment affects their organisations characteristics. The next section, therefore, discussed how the two strands converged or diverged based on the themes.

7.4.1.1 Organisational characteristics

The intention of this theme was to establish the decision-making style of each organisation, the organisation's structure in terms of control mechanisms, and the management philosophy of the organisation. The question of interest was whether these features of the organisations effectively supported the implementation of their business strategies. Different business plans and strategies demand different structures of decision-making; thus the analysis of the case studies considered whether the organisational characteristics were appropriate for the stated organisational strategies. Quantitatively from Chapter 6, most respondents believed that their style of decision-making, organisational structure and management style influenced the choice of strategies and the resulting performance. However, although these characteristics show

significant relationship with both objective and quasi-objective measures of performance the correlation does not appear in the fully subjective measures.

The analysis showed that both directive and participative (democratic) management and decision-making styles were used within their organisations, depending on the individual concerned. In summary, the analysis showed that all respondents believe these characteristics to be complementary to the business strategies they employed in achieving their organisations' overall objectives. This finding was consistent with limited research efforts on the influence of decision-making style of manager's performance (Albaum *et al*., 1995: Russ *et al*., 1996). Also, evidence drawn from the construction industry suggests that management style and the structure of organisations can enhance competitive advantage which can lead to superior performance (Lansley, 1994; Naum, 2001; Nicholas, 1990; Shiraz *et al*., 1996).

7.4.1.2 Business strategies/plans

The quantitative findings showed that the three Porter generic strategies are prevalent within the South African construction industry, and these strategies influence organisational performance. The quantitative analysis indicated that strategies used by organisations have direct influence on their performance and also mediate in the relationship between an organisation's resources and its capability and performance. However, these effects are moderated by the environment. It appears that some organisations align themselves with a specific strategy, whether knowingly or unknowingly, to achieve their objectives. This is consistent with Ramsay's (1989) assertion that construction organisations adopt specific strategies without consciously choosing them.

In the four case studies, all the organisations except Z had formally written overall strategic objectives of their organisations, and the organisation's plans to achieve them. All the organisations pursued one strategy or combination of strategies to survive in the construction market. However, all the organisations practiced the default low cost strategy that characterises the construction industry and at the same time differentiated through quality or focus on a particular niche market. The qualitative analysis indicated that the business strategies identified from the case studies could to be aligned to the generic model of competitive strategies postulated by Porter (1980; 1985). This is coherent with the usual practices within strategic management research and thus, it was considered relevant to categorise the organisations on

this basis. From the case analysis it can be seen that organisation W adopted a differentiation strategy with attention on cost effectiveness. Organisation X used a focus strategy, while Z used a cost-leadership strategy respectively. The interviewee at Organisation Y did not provide any clear evidence of a specific strategy being used. These findings corroborate the assertion of management researchers in the construction industry, who argue that Porter's generic strategy is relevant and present within the industry (Betts & Ofori, 1992; Price, 2003: Price *et al*., 2003).

7.4.1.3. Strategic analysis

Strategic analysis is an integral part of the decision-making process. It aims to identify whether the organisation's resources and capabilities are compatible with its overall objectives, and are complemented by the management philosophy and structure (Naismith, 2007). Although statistically, organisational resources and capabilities were found not to exhibit significant direct effects on organisational performance however significant effects were noticed when the strength of relationship between the two constructs was mediated by strategy. This accords with the findings of previous study that resources and capabilities alone cannot guarantee superior performance unless they are combined with appropriate strategy (Chew *et al*., 2008; Newbert 2008). The quantitative results also showed that organisations operate in different environments which may influence their decision making structure but do not have direct significant effects on their performance.

The case study analysis was conducted using SWOT analysis. Opportunities and threats represent the external environment while strengths (resources and capabilities) and weaknesses are considered internal to the organisation. With respect to resources and capabilities the main strengths according to the findings included effective management and leadership skills; good financial resources; quality of product or service; stakeholders' relations; employee quality; staff training; low staff turnover etc. The interviews showed that major weaknesses revolved around lack of skilled workers, permanent staff; organisational structure and size; and maintaining projects without rework/recall. The external opportunity lay in their ability to continually exist in the market and availability of jobs through government spending, market expansion opportunities, and strong client base as well as organisations reputation. The threats included lack of continuity of work, corrupt practice in the industry, prolonged procurement processes, and delay in payments.

There were divergent opinions amongst the respondents but generally the organisations had awareness about the construction environment, their relationships with their clients, their competitors and market situations, and the resources at the disposal of the organisation to confront the turbulent business environment. The analysis showed that the business environment is competitive and unstable, with both opportunities and constraints. The respondents asserted that their organisational decision-making structure and leadership skills allow their organisation to maximise the opportunities and minimise the threats in the business environment to achieve their organisational objectives. These findings were consistent with those from the quantitative analysis.

7.4.1.4. Business evaluation approach

Business evaluation is an approach that allows organisations to measure their organisational performance, and 'health-check' its alignment to its overall goals. According to Bassioni, Price and Hassan (2005) organisations need comprehensive examination of how they perform in various aspects of the business. From the quantitative analysis, there was evidence that organisations measure their performance using objective measures (financial), quasi-objective measures (non-financial) and (objective achievement) of organisational performance. Although the objective achievement was not significantly related with the independent variable still the insignificant results showed that it is being used. This finding is consistent with Kale and Arditi (2003), Tan *et al*. (2012) and Yang *et al*. (2010) who found evidence for the use of both objective and subjective performance measures in construction industry.

The analysis of the case study showed that respondents measured performance by comparing their organisations with industry competitors. For this they used the number of contracts won, the company balance sheet and employee turnover. It was evident that while two out of the four case study organisations were still using the traditional accounting system which is purely financial, the other two used a combination of financial and non-financial measures. However, all respondents made the point that without the right people, it will be difficult for any organisation to achieve success. This is consistent with finding in the literature that the root of poor performance in construction can often be traced to human components within the organisation (Arditi, Koksal & Kale, 2000; Beatham, 2003; Lam, Lam & Wang, 2008).

7.5 Implications of the qualitative analysis for the conceptual model

The findings from the case studies generally support the relationships among the constructs proposed in the conceptual model presented in Chapter 4. The qualitative data provided a coherent picture of the perspectives of the operators in the industry. The findings showed that the theoretical basis for developing the model is well founded. However, the conceptual model does require some modification, to take into account the views expressed by the interview respondents. In other words, the qualitative data shed some new light on the model and showed a need to modify the model presented in Chapter 4 slightly. In particular, to represent the views of the respondents the direct link between organisational characteristics and the environment is eliminated. On this basis, the study was able to combine findings from the quantitative analysis, which established relationships among the constructs, with the results from the qualitative strand, to validate the proposed model. The model will be tested in the next chapter (Chapter 8).

7.6 Summary

The findings from the case studies indicate that Porter's generic strategies are prevalent in the South African construction industry, and these are used implicitly by organisations. Organisational characteristics were viewed in terms of decision-making structure, decision-making style and management philosophy or style, which support organisation business strategies to achieve performance excellence. It was evident that organisations do conduct strategic analysis using the SWOT analytical approach, but not all adopt conventional strategic management techniques in the decision-making process. The strength of the organisations laying their culture, management philosophy and line of control. The weaknesses resulted from financial constraints due to lack of continuity of works, and structural control systems that affect the flow of information. Respondents identified opportunities in terms of market growth and favourable business climate, ability to diversify, and continuous patronage by the public sector, evidenced by the increase in government spending on infrastructure. Threats to the organisation were ascribed to delays in payment, prolonged procurement periods, and compliance with BEE regulations to get contracts. Organisations identified effective management of people (human resources), finance, and having the necessary skills to execute construction works as their main resources and capabilities. In addition, organisations used both financial and non-financial performance measures in evaluating the strategies used for achieving overall organisational objectives this was verified through document analysis.

CHAPTER 8
VALIDATION OF CONCEPTUAL MODEL

8.1 Introduction

This chapter presents the result of model fitting using a Partial Least Square Structural Equation Model (PLS-SEM). The model is analysed and explained in four stages. The first involves the measurement model which was used in assessing the links between the latent and manifest variables. The second stage involves the assessment of the structural model which specifies the links between the latent factors. The third stage presents the structural equations of the paths. Lastly, the path coefficients (the indicators of the predictive power of the model) are estimated and analysed to test the structural model.

8.2 Model development

In order to develop a generic model for improving the performance of construction organisations, the study utilised the results from both the quantitative and qualitative strands presented in Chapters 6 and 7 respectively. The findings from these two approaches were integrated with the theoretical analysis presented in Chapter 3. Chapter 6 presented the findings from the survey conducted among large firms in the South Africa construction industry. The survey results showed that Porter's (1980; 1985) generic strategies are being used by such construction organisations, and that they adopt any of the strategies in achieving their organisational objectives. The findings also indicated that strategies used by construction organisations influence their performance. In summary, the findings revealed that organisations that strive to achieve beneficial strategic fit with the business environment, and which utilise one or a combination of the generic strategies with suitable organisational characteristics and resources/capability, outperform industry competitors that do not. In addition, the findings from the four case studies (presented in Chapter 7) identified the structure and nature of the relationships among the constructs presented in the conceptual model in Chapter 4. Their influence on the performance of organisations was analysed. It was established through the case studies that for organisations to have sustainable performance, all the constructs illustrated in the model are essential. These constructs all come into play as organisations explore business opportunities using their strengths, and try to neutralise threats resulting from their weaknesses. Drawing on the results from both the quantitative and qualitative investigations, as well as the

analysis of the underpinning theories, a generic model for improving organisational performance was developed.

8.3 Model fitting and analysis using pls-sem

This study employed the PLS-SEM method to test the relative strength of explanatory variables on the dependent variable(s) of interest, and estimated the relationship between the variables included in the model. This technique was used because it was considered to be a superior technique for refining and developing theoretical models, which is the focus of this research (Robins, 2012). Therefore, PLS-SEM was used in this research to investigate the strength and total effects of organisational characteristics, resources and capabilities, environmental factors, and competitive strategy, on organisational performance using performance measurement variables as outcomes (dependent variables).

PLS-SEM was chosen for this study due to its numerous advantageous features. Firstly, it requires less demanding distributional assumptions about the models. It is capable of producing unbiased estimates of parameters with a small data set, whereas modelling via Amos or Lisrel may require larger data sets (Hair *et al.,* 2012; Robins, 2012). Secondly, it easily accommodates formative indicators in measurement models, which other techniques may not allow (Robins, 2012). Thirdly, it was been considered to be the most suitable method for the development of new theory (Elbanna, Child & Dayan, 2013). Lastly, like CB-SEM, it estimates path models for latent variables by incorporating multiple dependent constructs, and unambiguously identifies measurement errors (Bhakar, Bhakar, Bhakar & Sharma, 2012).

To establish the minimum sample size required for strong PLS-SEM, the rule of thumb reported by Elbanna *et al*. (2013) was followed. This suggests using a minimum sample size of ten times the number of path relationships leading to the endogenous construct (outcome). The model features four main paths leading to organisational performance, indicating that a minimum sample size of 40 observations would suffice. The study adhered to the guidelines provided by Hair *et al*. (2011; 2012) and Chin (2010) in using and reporting PLS-SEM techniques of model development. The main objective of developing this model was to confirm significant associations between constructs, possibly identifying news ones that have not yet been reported in the literature.

Tenenhaus, Esposito Vinzi, Chatelin and Lauro (2005) asserted that a PLS-SEM path model can be validated at three levels using the quality of the measurement model, the structural model, and each structural regression equation. This section reports the PLS-SEM analysis undertaken in four stages: the measurement model, structural model results, presenting the structural equations; and testing whether there is significant relationship between the constructs in the model.

8.3.1 Model Validation: Measurement model results

The PLS-SEM analysis was conducted using SmartPLS (Version 2.0 M3) software to assess the measurement capacities of the explanatory variables and the predictive strength of the model. SmartPLS software was chosen because of a special feature that deals with unobserved heterogeneity through the finite mixture routine (FIMIX) technique (Ringle, Wende, & Will 2010; Sarstedt & Ringle 2010; Sarstedt, Becker & Schwaiger 2011). In order to obtain the measurement model results, all the possible structural relationships among the constructs were drawn and the reflective indicators shown. The PLS algorithm was then used to set the inner weighting (Chin, 2010). The psychometric traits of the items employed in measuring the constructs were evaluated for item loadings, discriminant validity, and reliabilities (Elbanna *et al*., 2013; Nandakumar, 2008). Chu, Hsiao, Lee and Chen (2004) posited that latent variable items with small and insignificant factor loading are to be removed. Factor loadings of 0.7 were recommended by Fornell and Larcker (1981) for each of the indicators, but this study considered the 0.5 standard used in factor analysis as acceptable (Hulland, 1999). Therefore the variables of environmental dynamism, environmental complexity, organisational structure, financial resources, and ROCE were dropped from their respective constructs for having factor loadings below the 0.5 thresholds (Bhakar *et al*., 2012; Chin, 2010).

Next, individual item reliability was examined by looking at the factor loadings on the latent constructs. Higher factor loadings indicate that there is more shared variance (between the latent variable and its indicators) than error variance.

Convergent validity was assessed. This represents the extent of agreement between two or more indicators of the same latent construct, and was assessed by examining the average variance extracted for each of the constructs. Henseler, Ringle and Sinkovics (2009) contended that convergent validity is established if the average variance is higher than 0.5. The study also

examined the discriminant validity of the constructs to determine the extent to which the constructs used in the model were different from each other. Chin (2010) asserted that discriminant validity is acceptable if at least 50% variance of the indicators is accounted for by the construct. Furthermore, the square root of each construct's average variance shared should be higher than the level of correlations involved in the construct (Chin, 1998).

Tables 8.1, 8.2 and 8.3 present the result of the measurement model. Table 8.1 shows the inter-construct correlations and the reliability measures of the model, with the discriminant validity diagonally on the table in bold. The average variance and the composite reliability shown in Table 8.1 were above the threshold of the 0.5 and 0.7 acceptance levels (Chin, 2010). Table 8.2 presents the descriptive statistics results and number of variables included in the model for each of the constructs, while Table 8.3 indicates the factor loadings of the variables included in the model. This shows that all the indicators had higher factor loadings and all constructs indicated more shared variance with their indicators. Hence the model had acceptable reliability and validity in explaining and predicting the links among the model constructs.

Table 8. 1: Inter-construct correlations and discriminant validity measures

	AVE	Composite Reliability	Environ.	Org. Charac.	Perform.	Resources & Capability	Compet. Strategy
Environment	0.7188	0.7145	**0.8478**				
Organisational Characteristics	0.6182	0.8686	-0.0034	**0.8253**			
Organisational Performance	0.6919	0.7459	-0.0473	0.3784	**0.8318**		
Resources and Capabilities	0.5698	0.7319	0.3219	0.1439	-0.1821	**0.7549**	
Competitive Strategy	0.6242	0.8838	0.1407	0.1394	0.3743	0.2972	**0.7901**

AVE: Average variance explained

Table 8. 2: Descriptive statistics for each construct

	Number of indicators	Mean	Std. Deviation
Competitive Strategy	3	4.1805	0.51985
Environment	2	4.20835	0.5405
Organisational Characteristics	2	4.0486	0.6479
Resources and Capabilities	2	3.7987	0.54803
Organisational Performance	2	4.1806	0.5218

Table 8. 3: Outer model loadings and cross loadings for measurement (outer) model

	Environment	Org. Xtic	PERFOR-MANCE	RES & CAPABILITY	STRATEGY
MUN	**-0.7320**	-0.0717	0.0358	-0.2601	-0.0137
CPT	**0.8377**	-0.0624	-0.0388	0.2500	0.1894
DMS	-0.1146	**0.8766**	0.3490	0.1107	0.1053
MGS	0.1967	**0.5176**	0.1653	0.1019	0.1024
COMPAN	0.1302	0.3901	**0.5118**	0.0049	0.1076
OBJACH	-0.1350	0.2009	**0.8496**	-0.2150	0.3695
HUMR	-0.2941	-0.0061	0.2297	**-0.7725**	-0.1689
TECH	0.1305	0.2184	0.0070	**0.5855**	0.2515
DIFF	0.0228	0.1007	0.2275	0.1626	**0.6375**
FOCUS	0.1203	0.0183	0.1460	0.2449	**0.5311**
COST	0.1257	0.1349	0.3289	0.1890	**0.7643**

MUN- Munificence; CPT- Competitive intensity; DMS- Decision-making style; MGS- Management style; COMPAN- competitive analysis; OBJACH- Objective achievement; HUMR- Human resource; TECH- Technological resources; DIFF- Differentiation strategy; FOCUS- Focus strategy; COST- Cost-leadership strategy.

8.3.2 Model Validation: Structural Model Results

The study analysed the inner model by linking together the endogenous latent constructs in it (Tenenhaus *et al*., 2005). The measurement model results in Table 8.3 established the suitability of the psychometric attributes of the measures. The conceptual model presented in this thesis is demonstrated by the structural model in Figure 8.1. The proposed structural model was examined by running and finalising the PLS algorithm in Smart PLS to identify relationships among the constructs. The main emphasis was to identify the variance explained by one or more variables included in the model, and at the same time to establish the significance level of all PLS path estimates (Chin, 2010; Lleras, 2005). Chin (2010) contended that the predictive strength of a structural model is evaluated by R^2 values of the endogenous construct. The structural model results showed that R^2 of the endogenous constructs in the model were mostly acceptable as they were higher than the recommended value of .10 (Falk & Miller, 1992; Elbanna *et al*., 2013). The exceptions were the paths associated with the constructs of resources/capability and organisational characteristics.

To test for the statistical significance of PLS-SEM paths, Smart PLS utilises bootstrapping techniques to resample the cases in order to determine the t-statistics value which indicates the level of significance of the path; this study performed bootstrapping using 500 resamples. Figure 8.2 presents the results of the structural model showing the path coefficients. Table 8.4 shows the t-statistics associated with each path. If the t-value is above is above 1.65, this indicates that the path coefficient is significant at $p \leq 0.10$. If the t-value is greater than 1.96, the path coefficient is significant at the $p \leq 0.05$ significance level; and when the critical t-value is above 2.57, it can be said to be significant at $p \leq 0.01$ (Nandakumar, 2008).

Table 8. 4: PLS Path modelling results with path coefficients

	Original Sample (O)	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**Standard Error (STERR)**	**t Statistics (|O/STERR|)**
Environment → Performance	0.0116	-0.0114	0.1232	0.1232	0.0942
Environment → Res & Capability	0.3219	0.0888	0.3172	0.3172	1.0148
Environment → Strategy	0.0559	0.0951	0.1488	0.1488	0.3754
Organisation characteristics → Performance	0.3713	0.3438	0.1392	0.1392	2.6677
Organisation characteristics → Strategy	0.1016	0.1301	0.1201	0.1201	0.8458
Resources & Capability → Organisation characteristics	0.1439	0.1065	0.1677	0.1677	0.8581
Resources & Capability → Performance	-0.3671	-0.0204	0.3575	0.3575	1.0267
Resources & Capability → Strategy	0.2646	0.0702	0.2737	0.2737	0.9667
Strategy → Performance	0.4300	0.4093	0.1440	0.1440	2.9867

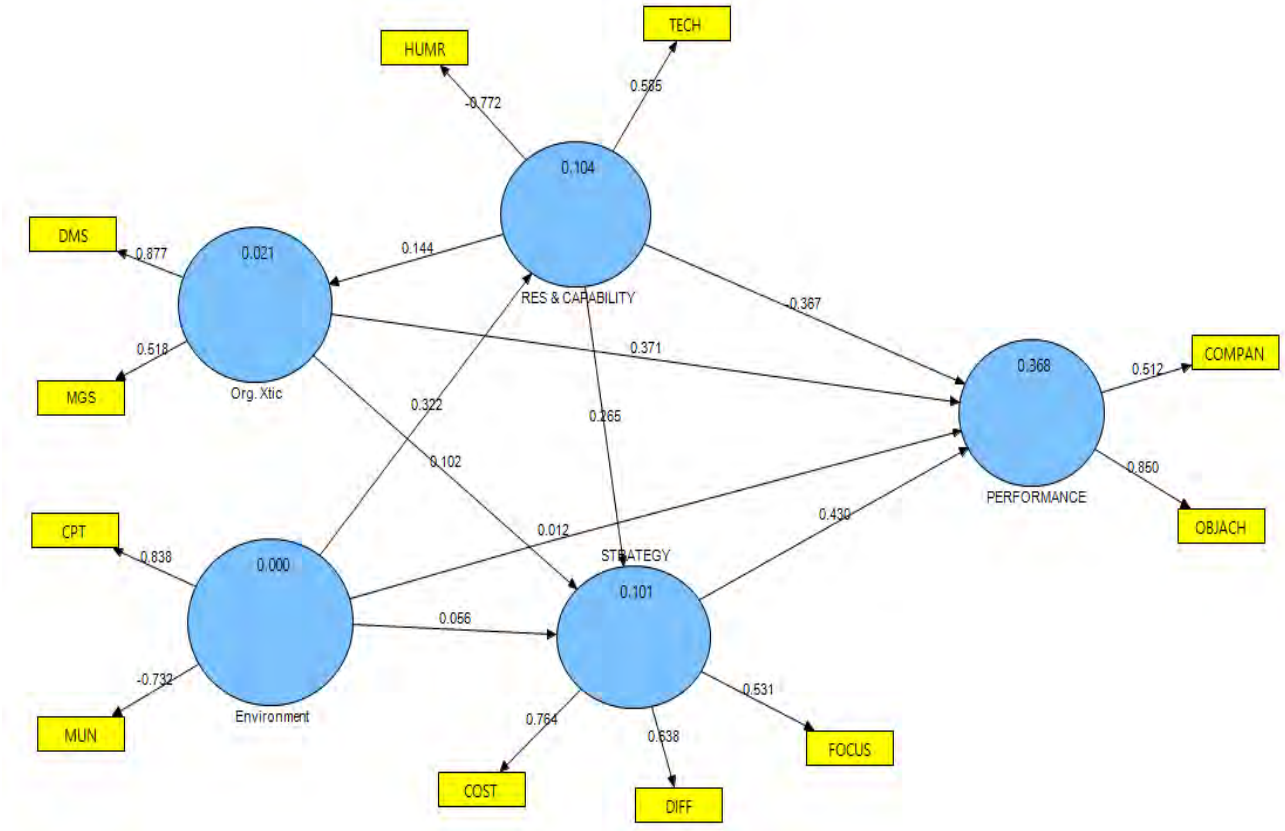

Figure 8. 1: **Structural model with path coefficient and R^2 values**

MUN- Munificence; CPT- Competitive intensity; DMS- Decision-making style; MGS- Management style; COMPAN- competitive analysis; OBJACH- Objective achievement; HUMR- Human resource; TECH- Technological resources; DIFF- Differentiation strategy; FOCUS- Focus strategy; COST- Cost-leadership strategy

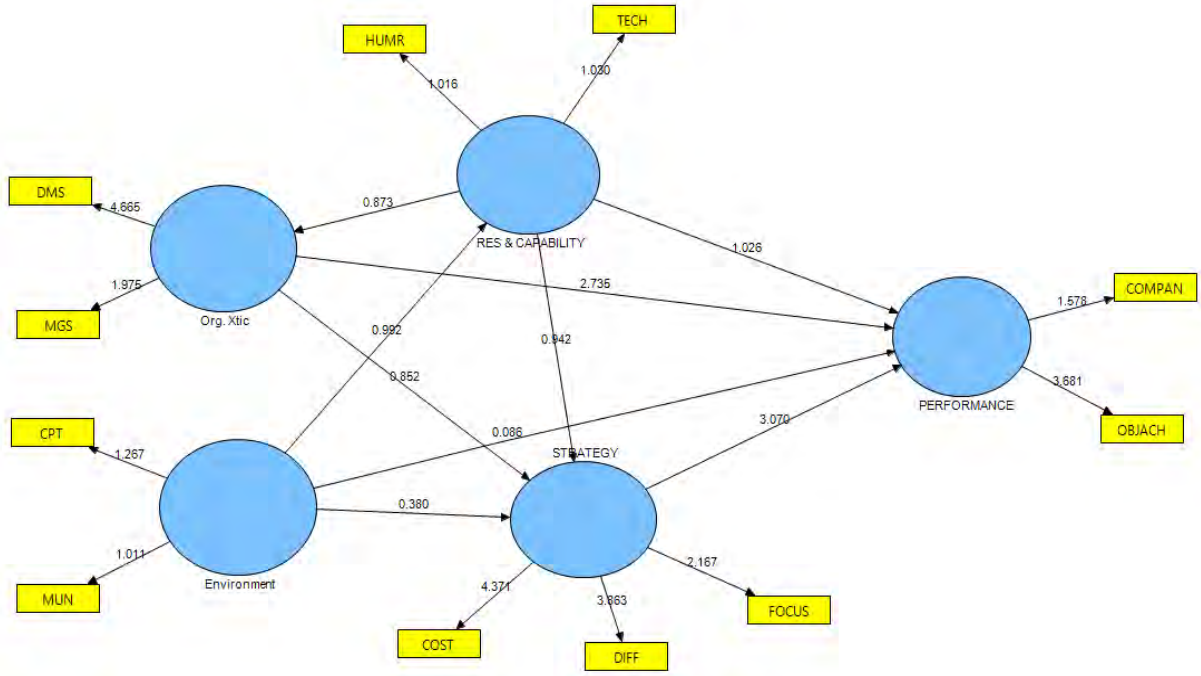

Figure 8. 2: **Structural model with 't' statistic values**

8.3.3 Model Validation: Structural equations

The inner model, which is also referred to as the structural model, is presented in Figures 8.1 and 8.2. Figure 8.3 shows how the latent constructs link with each other according to the basic theoretical framework. The latent variables were classified into endogenous and exogenous variables. According to Lleras (2005), endogenous variables are variables that are produced by one or more variables included in the model. They have both incoming arrows and intervening causal variables. Exogenous variables on the other hand are variables produced by variables external to the model and whose function is to offer explanation on variables within the model (Lleras, 2005).

The business environment dimension is the only exogenous variable in this model, as it does not have any preceding variables in the structural model. The structural model for organisational performance is illustrated by Figure 8.3. PLS-SEM is based on a series of OLS regressions, hence all the relationships depicted in Figure 8.3 are considered to be linear, causal and additive (Hair *et al*., 2012; Lleras, 2005). The model is therefore identified by structural equations that explain the direct causal links between the constructs. The model presented had four endogenous variables whose four sets of standardised coefficients were estimated using PLS-SEM. The set of the tested causal links hypothesised in the study related to the following

PLS-SEM path equations. (Note that the symbol **ε** represents the error terms, denoting the variation that remained unexplained by the predicting variables within the path model.)

Environmental dimension = Environment + 0 (Exogenous variable)…….…….. (1)

Organisational characteristics = PAC (Resources & Capability) + ε_1 ……..…..... (2)

Resources & Capability = PCB (Environment) + ε_2……. (3)

Competitive strategy = PSB (Environment) + PSA (Organisational characteristics) + PSC (Resource & capability) + ε_3……. (4)

Organisational performance = PEB (Environment) + PEA (Organisational Characteristics) + PEC (Resources & Capability) + PES (Strategy) + ε_4……..…….....(5)

The following path coefficients are depicted by the abbreviations as shown in Figure 8.3:

Environment → Performance…….…. PEB
Environment → Resources & Capability…… PCB
Environment → Strategy…….....PSB
Organisational characteristics → Performance…….PEA
Organisational characteristics → Strategy……PSA
Resources & Capability → Organisational characteristics ……..PAC
Resource & Capability → Performance……PEC
Resources & Capability → Strategy…….PSC
Strategy → Performance…….. PES

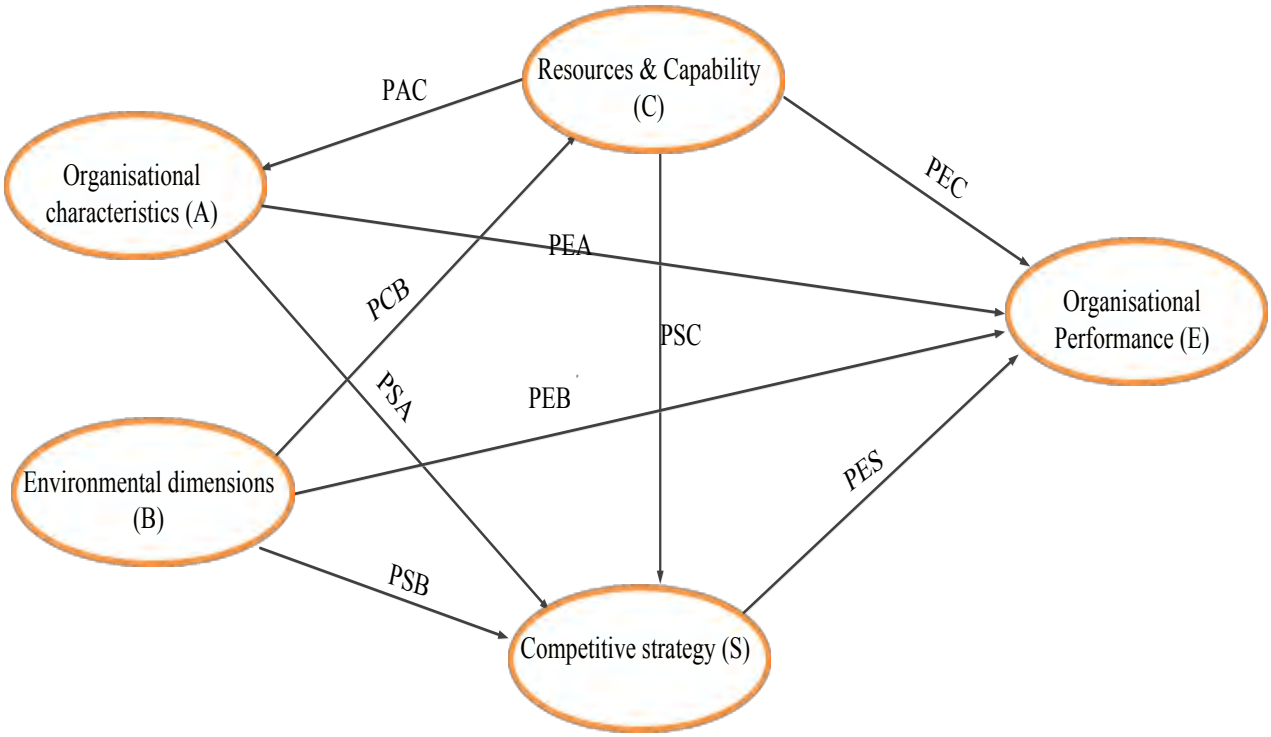

Figure 8. 3: **Causal structural model explaining causes of organisational performance.**

8.3.4 Model Evaluation

The PLS-SEM path modelling technique, unlike the CB-SEM PLS-SEM, does not insist on any distributional assumptions, and therefore PLS researchers cannot depend on the classic inferential framework (Hair *et al*., 2012). Prediction-oriented and non-parametric assessment criteria, in addition to resampling techniques, must therefore be used to evaluate the adequacy or fitness of PLS model structures (Chin, 2010). SmartPLS, like all other PLS software, does not report the PLS result using any form of indices such as Comparative Fit Indices (CFI), Root Mean Square Error approximation (RMSEA) or Tucker-Lewis Fit Indices (TFI). However, PLS considers R-square as an essential criterion for predictive significance of any model. Therefore, considering the increasing need to report and evaluate the performance of PLS models (measurement and structural models) with attention being paid to the overall predictive power of the model, this study used a global criterion of goodness of fit (GoF index) suggested by Tenenhaus *et al*. (2005). The GoF index is described as the geometric mean of the *average communality* index and the average R^2 value (Tenenhaus *et al*., 2005). This study followed the procedural guidelines provided by Wetzels, Schroder and Oppen (2009) to compute the GoF values, which may be considered as minimum values for global validation of PLS path models. Based on the values in Table 8.1, a GoF value of 0.357 was obtained for the whole model. This was equivalent to the threshold value of 0.36 for large effect sizes of GoF. The standard values

given by Akter, D'Ambra and Ray (2011) as a rule of thumb, indicate 0.1 as being a small GoF value (low Goodness of Fit), 0.25 as a medium value, and 0.36 as a large value (strong Goodness of Fit). Thus the study concluded that the partial model in this research had strong Goodness of Fit, and that it also offered support to validate the PLS model globally (Wetzels *et al*., 2009).

8.4 Discussion of findings from the models results

The research included all constructs in the study to test both direct and indirect links among the constructs. From the results of the models explained in the preceding sections, the structural models tested indicate that the business environment dimension influences organisations' deployment of resources and capability. The R^2 value of 10.4% is at the acceptable level of 10% reported by Elbanna *et al*. (2013). However, this positive relationship is not statistically significant. Organisational characteristics exhibit a direct and positive significant relationship with organisational performance at the 1% level of significance. Considering the reflective indicators that contributed to the significance level, it seems that a viable decision-making style combined with effective management philosophy will lead to better performance (r [path] = 0.371; t = 2.735, $p<0.01$). Organisational characteristics (decision-making style and management style) is positively but not significantly related to strategy (path = 0.102; t = 0.852).

The results also indicate that the variable "resources and capability" is negatively linked to organisational performance (path = 0.367; t = 1.026, p-value not significant at <0.05). This affirms the assertion of Newbert (2008) that competitive strategy influences the nature of the association between capabilities/resources and organisational performance. This is also supported by Chew *et al.* (2008) who argued that there is a need to align capability and competitive strategy as a prerequisite for superior organisational performance, as resources alone cannot guarantee competitive advantage until they are organised into capability. The study found that organisational characteristics, resources/capability, and environment are positively related to strategy, but that these relationships are not statistically significant. The three constructs explained only 10.1% of the variance in the outcomes. This implies that other contextual constructs are required to account for the variation left unexplained by the three explanatory variables within the model.

This model did not test the moderating effect of the environment on the strength of relationship between strategy and performance. It did, however, show a non-significant relationship between environment and organisational performance. This means that there is no relationship at all between environment and performance. Competitive strategy was positively and significantly related to organisational performance (path = 0.430; t = 3.070) with the R^2 value of 36.8%. In summary, the results upheld the hypothesised statement that combinations of the four constructs (organisational characteristics, strategy, resource/capability and environment) will lead to a superior performance. The critical link between strategy and performance had the coefficient 0.43, $p<0.01$ for the PLS-SEM path model estimated on aggregate effect level. Table 8.5 provides the summary of effects on hypotheses.

The results of the structural model shows that some links tested earlier (such as the link between resources and performance, and that between resources and organisational characteristics) were not significant. This indicates that the model had weak predictive power within the context of this study. Although at the aggregate data level, the R^2 value was above the recommended 10% threshold reported (see Elbanna *et al*., 2013) and the GoF was above the maximum strong Goodness of Fit (0.36), nevertheless the model could only explain approximately 37% of the variation in the path model. Although, the strength of relationship as indicated by the R^2 value of 0.368 is weak, however, this is good enough to differentiate organisational performance (see Jacobson, 1987). Therefore, this result does not affect the reliability of the results/model. However, the limited explanatory ability could be as a result of three factors identified by Nandakumar (2008), namely sample inadequacy/problems; issues with the psychometric attributes of measures involved in the study; and the possibility of a lack of explanatory power of the indicators involved in predicting organisational performance.

PLS-SEM is referred to as a 'soft technique' because it makes no distributional assumptions, places minimum requirements on sample size, and usually attains high levels of predictive ability (Reinartz *et al*. 2009). The poor fit is not as a result of sample size (since 40 observations is the minimum required for this analysis, and the study considered 72 cases). The measures for the constructs and indicators used in the study were from previously validated studies (e.g. Amzat & Idris, 2012; Dess & Davis. 1984; Kale & Arditi, 2003; Nandakumar *et al*., 2010); therefore the scales may not be entirely responsible for thelack of fit. The poor predictive power of the model as a whole is most likely due to the indicators used to predict organisational performance. This study examined the contributions of organisational characteristics, strategy,

business environment, and resources/capability to organisational performance. However, these constructs could explain only 36.8% of the variation in organisational performance. It would thus seem that other constructs not included in this research might be important predictors of organisational performance.

Application of the PLS Model

PLS is a SEM which is a very useful and robust technique for both empirical and theoretical research, and its applications in construction research has continued to increase (Xiong, Skitmore & Xia, 2015). Partial least squares (PLS) was used for constructing models for predictive purposes. This is employed in this research as a result of availability of many factors capable of influencing the performance of construction organisations. PLS-SEM may be applied by construction organisations to analyse their strategies, characteristics, resources and capabilities as well as environment with high degree of complexity and predict the performance of their organisations, this offers some systemic basis for performance monitoring and can prevent organisational failures. Besides performance-analytic modelling, such approaches are required in construction industry for making decisions that will enhance and improved organisational performance.PLS regression as a tool can handle a very large number of predictors and can thus be applied by organisation to their performance problem without adaptation as it manages to account for the complexity between the factors mentioned in the model (Boulesteix & Strimmer, 2006; Fischer, 2012). Therefore, construction organisation can use cross-validation for the selection of their performance variables and this presents a practical application of PLS-SEM to a set of hypothetical statements stated in Chapter 4 of the thesis for examining the sources of performance differentials in large construction organisations.

Table 8. 5: Summary of the causal links tested in the PLS-SEM path model

Path Label	Path relationships	T-statistics	Corresponding hypothesised causal path	Effect on hypotheses
PES	Strategy → Performance	Significant	*Hypothesis 1: There is a significant relationship between competitive strategy and organisational performance*	Supported
PEA	Organisational characteristics → Performance	Significant	*Hypothesis 3a: Organisational characteristics have a direct impact on organisational performance.*	Supported
PSA	Organisational characteristics → Strategy	N.S	*Hypothesis 2b: Organisational characteristics moderate the strength of relationship between competitive strategies and organisational performance.*	Not tested
PEB	Environment → Performance	N.S	*Hypothesis 3: Environmental dimensions moderate the relationship between competitive strategies and organisational performance.*	Not tested
PSC	Res & Capability → Strategy	N.S	*Hypothesis 5a: There is a significant relationship between organisational capabilities/resources and organisational performance which is mediated by competitive strategies.*	Supported
PEC	Res & Capability →Performance	N.S	*Hypothesis 5b: There is a significant positive relationship between organisational capabilities/resources and performance.*	Not Supported
	Combined paths	Significant	*Hypothesis 6: Organisations that place emphasis on obtaining strategic fit with the business environment, adopt one of the generic strategies with right the organisational characteristics and resources/capability will outperform their competitors that do not.*	Supported

8.5 Summary

This study employed the PLS-SEM method to test the conceptual model put forward in the early Chapters 4 of this thesis, examining whether statistically significant relationships exist between the constructs within the model. The tested structural model upheld some but not all of the hypothesised causal links. The overall model testing indicated that the study model resulted in an acceptable R^2 (37%) statistic because that is greater than the recommended 10%. Also, the strong Goodness of Fit values for model fitting and validation showed that the model could predict organisational performance, and is adequate for global validation of a partial model path. The low R^2 values may be as a result of insufficient explanatory power of the indicators used in measuring the constructs.

CHAPTER 9
SUMMARY OF RESEARCH FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

9.1 Introduction

This study examined the impact of organisational characteristics, resources and capabilities, and competitive strategies on construction organisations' performance, in relation to their business environments in the South African construction market. The study began by reviewing the international research literature within both the mainstream strategic management and the construction management disciplines, identifying concepts pertinent to organisational performance in the construction industry. The literature review provided the basis for the selection of the key constructs to be included in the study, and the development of questions and hypotheses about their interrelationships. The main research questions the research answered were "*What are the determinants of construction organisations' performance, and how can existing strategic management theories be used in explaining performance differentials"*. These answers are important for ascertaining what drives construction organisation's to enhance their performance and survival in the industry. The need to answer these questions informed the development of research instruments for both the qualitative and quantitative strands of the study.

This final chapter recaps the key findings from the literature and relates them to the major findings of the research. This chapter highlights the study's contributions to the existing body of knowledge, its practical implications, the limitations of the research, and areas for further research.

9.2 Aim and objectives of the study

The aim of this study was to address the following central question: "*What are the determinants of construction organisations' performance, how can existing strategic management theories be used in explaining performance differentials?"*

To provide answers to the question, the research identified the following specific objectives:

- Identify the prevalent competitive strategies used by large construction organisations, as well as the specific strategic attributes linked with each competitive strategy.
- Examine the relationship between organisational characteristics and strategies adopted by organisations and their effects on organisational performance.
- Examine the nature of the construction business environment and investigate whether it has moderating effects on the strength of the relationship between strategy and organisational performance.
- Examine how organisational resources and capabilities impact on competitive strategy, and their influence on organisational performance.
- Classify construction organisations into different strategic groups and examine whether differences exist between organisations in terms of performance, characteristics, resources and capability, and how they achieve strategic fit within different environments.
- Develop a model for construction organisations' competitiveness which links organisational characteristics, resources, capabilities, competitive strategies and business environment.

In order to achieve these objectives, the study started by reviewing the existing literature. The aim of the review was to gain a better understanding of the key concepts and to identify appropriate measures for the research constructs (organisational characteristics, competitive strategies, resources and capabilities, and business environment). The literature review also aimed to establish current research trends in strategic management studies within the construction industry, while identifying gaps that could be bridged. When it came to the collection of original empirical data, the study used a systematic approach to data collection and analysis. A mixed methods approach was adopted to obtain both quantitative and qualitative data. Survey questionnaires (quantitative) and semi-structured interviews (qualitative) were used to gather empirical data. Therefore, the major findings presented in the thesis constitute (a) the findings from the literature review, and (b) the findings based on the

original empirical data collected in this study. These two sets of findings will be discussed in turn, and will then be related to each other.

9.3 Summary of gaps in the literature

For the past three decades, researchers in management studies have theorised and investigated the influence of competitive strategies on organisational performance. Since this issue is of obvious relevance to construction companies, increasing attention has been paid to the relationship between strategy and organisational performance in the construction industry. For example, Dikmen and Birgnoul (2003) have developed a conceptual framework for the analysis of strategic perspectives of construction organisations in the Turkish construction industry to improve their competitiveness. In the African context, Ngowi *et al.* (2005) have explored how construction firms with low financial resources can develop competitive advantage and sustain competition through firm-specific capabilities. More recently, Chew *et al*. (2008) have examined the relationship between core capabilities, competitive strategies and performance of SMEs in China, while Tan *et al*. (2012) have examined the impact of a competitive environment and competitive strategies on contractors' performance in Hong Kong.

However, none of these studies have taken into cognisance the *combined* influence of organisations' characteristics, their strategies, and their resources and capabilities, in relation to the business environment. This study thus explored these constructs by considering the three generic strategies propounded by Porter (1980; 1985), focusing on four contemporary theoretical bases for explaining performance heterogeneity among organisations: industrial organisation, contingency, resource-based view and dynamic capabilities.

Firstly, with respect to organisational characteristics, an extensive review of the literature indicated that earlier research on the relationship between organisational characteristics (such as decision-making and organisational structure) and organisational performance remains inconclusive. Some of these studies argued that organisational performance is contingent upon the structure of the organisation and some other factors, while a few argued that the influence of organisational characteristics on performance is indirect. The literature also indicated that decision making processes and choices may be affected by the business environments in which organisations operate. For instance, some studies contended that there is a relationship between rational decision-making processes and superior performance in stable and high munificence

environments, while a few studies reported that higher performing organisations adopt more rational decision-making processes and utilise information at their disposal to reduce uncertainty in the business environment. Overall, the literature review found a dearth of empirical studies examining these assertions within the construction industry. This study set out to address this gap by investigating the role of organisational characteristics in predicting organisational performance, within the context of the South African construction industry.

Secondly, strategy researchers diverge in their understanding of the effects of the business environment on the strength of the relationship between strategy and performance. Some studies have found that a close nexus exists between strategy and environment, and that the performance of an organisation depends on the interplay of strategy and environment, while some consider environment not to be a moderator. The literature also indicated that different strategies are appropriate in different environmental conditions. For example, some of the previous studies found that a cost-leadership strategy leads to better performance in a stable environment, but is negatively related to organisational performance in an unpredictable environment. The review of the literature showed the need to investigate the influence of strategy on organisational performance and appraise the moderating effects of business environment on the strength of their relationship.

Thirdly, this study examined organisations' resources and capabilities using three main variables: technological resources, financial resources, and human resources. The evidence from the literature indicated that an investigation into the performance effect of resources and capability may be indecisive if the moderating role of competitive strategy is not explored. However, not many studies have examined whether the capabilities/resources of an organisation are directly related to performance, or whether competitive strategy has a moderating effect on performance with respect to the business environment. The existing literature contains very little empirical research investigating the relationship between organisational resources, strategy, and performance in the construction context.

Lastly, although a few studies have examined the relationship between competitive strategies and performance in construction companies, most of these have taken place in the context of developed countries. There exists little or no research in the African context that focuses on these issues, or develops a model involving these constructs to improve organisational

performance. The study thus aimed to address this gap by developing a locally validated model to enhance construction organisation performance in South Africa.

9.4 Summary of research findings

This section presents the findings from the empirical research. The research objectives and the related findings are discussed.

9.4.1 Objective 1

Identify the prevalent competitive strategies used by large construction organisations, as well as the specific strategic attributes linked with each competitive strategy.

The results from both the quantitative and qualitative strands indicated that Porter's generic competitive strategies (differentiation, cost-leadership, and focus) are prevalent within the South African construction industry. The study found that a significant number of organisations identified the need for strategies, and were implicitly aligned to a strategy with the aim of reducing their business risks; organisations which adopt a differentiation strategy possess on-schedule and quality attributes that differentiates them from other competitors in the industry; Cost-leadership organisations exhibited low-cost and innovative attributes to become market cost leaders; and Organisations that utilise a focus strategy show market segmentation attributes by adding value to the entire project delivery, and focus on a certain segment of the industry – either through concessional contracts or providing housing for a niche market to win trust or patronage.

9.4.2 Objective 2

Examine the relationship between organisational characteristics and strategies adopted by organisations and their effects on organisational performance

The study operationalised organisational characteristics using organisational structure, decision-making style and management style. The study identified the analytic and directive decision-making styles as having a significant impact on performance. The participative and authoritative management styles were also found to be prevalent among the organisations studied. Organisational structure was represented by the general categories of organic and mechanistic organisational structure.

The quantitative data obtained through the survey indicated that organisational characteristics (decision-making style) have direct impact on organisational performance (non-financial measures). It was found that organisational characteristics (organisational structure and management style) moderated the relationship between cost-leadership strategy and competitive analysis measures of organisational performance. The findings also give evidence that interaction exists between differentiation strategy and Return on Capital Employed (ROCE) as well as measures of competitor's effectiveness which was moderated by organisational characteristics (decision-making style and organisational structure). It was further found that a significant relationship exists between decision-making style, and both financial and competitive analysis measures of performance. It can be inferred that organisational characteristics moderate the relationship between competitive strategy and organisational performance, thus lend support to hypothesis 2a and 2b:

Hypothesis 2a: Organisational characteristics have a direct and significant relationship with organisational performance.

Hypothesis 2b: Organisational characteristics moderate the strength of relationship between competitive strategies and organisational performance

The case study findings indicated that organisations use different lines of command and decision-making structures to achieve their objectives. It was found that organisations undertake strategic analysis using the Strength-Weakness-Opportunities-Threats (SWOT) analytical approach, but few adopt conventional strategic management techniques in evaluating their business strategies and environment. The findings also showed that employees tend to perform better when they are recognised and allowed to contribute to decision-making.

9.4.3 Objective 3

Examine the nature of the construction business environment and investigate whether it has moderating effects on the strength of the relationship between strategy and organisational performance.

Before examining the dimensions of the business environment, the study first identified the exogenous and endogenous environmental factors that are likely to affect the business-level strategy utilised by organisations. Factors identified as exogenous to the organisation business environment included corruption and lack of transparency; demand for construction; prolonged negotiation period prior to award; technological impact; intense rivalry between organisations; and political instability. The identified endogenous factors included leadership style;

management strategy; business competition law; career path for employees, team spirit among employees, and poor financial status.

When the impact of the environmental dimensions was explored, the findings did not give support to Hypothesis 3, which states that dimensions of the environment moderate the strength of relationship between competitive strategies and performance. Although complexity, dynamism and munificence of environments were found to be significantly related to non-financial measure of performance when the interaction effects were examined, these made insignificant contribution to the models based on R square change. Thus, hypothesis 3 was rejected on the grounds of insignificant moderation effects.

9.4.4 Objective 4

Examine how organisational resources and capabilities impact on competitive strategy, and their influence on organisational performance.

The study examined both the direct and mediating influence of organisational resources and capabilities on competitive strategy and performance. The correlational findings showed a positive link between the technological resources of an organisation and differentiation strategy, and also between differentiation strategy and cost-leadership. The study inferred that organisations may have pursued a differentiation strategy to become market cost-leaders in achieving superior performance. However, an examination of the main effects of resources and capabilities on performance, showed a positive but insignificant and indirect relationship between competitive strategies and measures of performance. When the mediating effects of competitive strategies on the relationship between resources and capabilities was examined, it was found that differentiation strategy mediated in the relationship between technological resources and the financial measures of organisational performance. Hence, the regression model connection of financial measures with technological resources and differentiation strategy was found to be significant. This provides partial evidence for Hypotheses 4b while hypothesis 4a is rejected.

Hypothesis 4a: There is a significant positive linear relationship between organisational capabilities/resources and performance.

Hypothesis 4b: There is a significant relationship between organisational capabilities/resources and organisational performance through competitive strategies.

9.4.5 Objective 5

To classify construction organisations into different strategic groups and examine whether differences exist between organisations in terms of performance, characteristics, resources and capability, and how they achieve strategic fit within different environments

This study identified four clusters of construction organisations. It examined the linkage of strategy clusters and performance using Porter's generic strategies; but the empirical results showed no statistically significant differences among the clusters in terms of performance. The clusters were compared to the typologies proposed by Miles and Snow (1978) to explore whether these typologies exist in the South African construction industry (though the validation of this typology was not the focus of the study). The findings showed that the four strategic groups exhibited the characteristics of Miles and Snow's (1978) taxonomy of strategies. Human resources were found to be significantly different across the groups. This finding was supported by the case study result where all the respondents' organisations placed a high premium on employees' satisfaction as a measure of achieving success. No significant differences were found in the performance of the clusters. This study thus proved empirically that different clusters of organisations exist within the South African construction industry, and that they exhibit the characteristics of defenders, prospectors, analysers and reactors.

9.4.6 Objective 6

To develop a model for construction organisations' competitiveness which links organisational characteristics, resources and capabilities, competitive strategies used by organisations, as well as the business environment, to enhance performance and achievement of organisational goals.

The Partial Least Square Structural Equation Modelling (PLS-SEM) method was used to develop the model and examine the combined effects of the constructs on performance. In the model, performance was measured through competitive analysis and the achievement of objectives. The results of the PLS analysis indicated a direct relationship between organisational characteristics and performance, with decision-making style having the most

significant contribution. The link between competitive strategy and performance was found to be positively significant with the measures of performance. However, the relationship between the dimensions of the environment and organisational performance was found to be insignificant. The PLS models (measurement and structural model) indicated an overall predictive power (R^2) of approximately 37%. Based on a global criterion of goodness of fit (GoF index) suggested by Tenenhaus *et al*. (2005), the partial model has high explanatory power (GoF = 0.36). It also offers support to validate the PLS model globally (Wetzels *et al*., 2009).

9.4.7. The main research question

What are the determinants of construction organisations' performance, how can existing strategic management theories be used in explaining performance differentials?

The research provided answers to the main research question raised in this thesis by identifying, organisational characteristics, resources and capabilities, environment and competitive strategies as determinants of construction organisational performance. However, these factors are not exhaustive but the interrelationship between them explained the source of performance differentials within construction organisations. Also, the contemporary theories employed by the research (that is industrial organisation theory, resource-based view, dynamic capabilities, and the contingency theory) provided helpful explanations for organisation performance differentials. The theories were integrated in this study to explain the source of heterogeneity in organisational performance in the construction context. Although these theories have their inherent weakness, the study drew on their strengths and integrated them to complement rather than to contradict the ideas presented in this research. The theories lend support to the explanation of the interaction between external and internal business environment of construction organisations, their competitive strategies and performance. The theories are relevant in explaining the causes of performance differentials, for example, industrial organisation and contingency theories show how organisations can achieve superior performance by obtaining a strategic fit with the business environment while the resource-based view and the dynamic capabilities approach explain how organisational resources can be organised into capabilities. These complementarities indicate that resources and capabilities cannot lead to competitive advantage without organisations pursuing appropriate strategy and vice versa. Therefore, the integration of these views will assist an organisation in developing a

competitive strategy, utilise its resources and capabilities with relevant characteristics to obtain a strategic fit with business environment and achieve superior performance.

9.5 Conclusions

Based on the findings from the reviewed literature and empirical results from the mixed methods approach to the study, the following conclusions were drawn:

Porter's generic competitive strategies (differentiation, cost-leadership and focus) are employed by business organisations in all industries. These strategies are utilised by South African construction firms in order to survive in the industry. There are five major strategic attributes exhibited by the large construction organisations studied, namely: on-schedule, quality, low-cost, innovative and cost advantage attributes. Organisations employed these attributes to achieve sustained competitive advantage.

Organisational characteristics do indeed influence the performance of organisations, and are capable of moderating the relationship between strategies used by the organisations and their performance. Directive and analytic decision-making styles impact on organisations' performance, as do participative and authoritative management styles. The study concluded that these styles are neither good nor bad. Rather, their success is dependent on the quality of implementation, and organisations' ability to identify which style is appropriate for a particular context or environmental situation. Organisational structure, management style and decision-making styles appear to enhance organisational performance when combined with cost-leadership or differentiation strategies.

Exogenous and endogenous environments influence the competitive strategies used by organisations, as established by the survey and case study findings. A balance between environmental factors and strategy determines an organisations' performance. Choosing the right strategy for a given environment helps organisations to explore potential market opportunities and reduce threats, thereby enhancing performance. Construction organisations employ different strategies to achieve superior performance in different environments. However, the interaction between environment and strategy was found to be insignificant, thus the findings suggest that there is need to investigate the role of other contextual factors as likely moderators of the relationship between the constructs.

Organisations' resources and capability impact on performance through strategy. Organisations considered their resources and capability as a key source of sustainable organisational performance by deploying them appropriately. Some organisations employed differentiation strategy using technological resources and capabilities to achieve high performance. A few organisations differentiated using technological, financial and human resources and capabilities to improve their performance financially.

This study has proved empirically that four clusters of organisations exist among large construction organisations within the construction industry, exhibiting the characteristics of defenders, prospectors, analysers and reactors. There were no significant differences in the performance of organisations across the clusters. There were significant differences between the groups in the human resources dimension of resources and capabilities as well as in their strategies.

The research suggests that organisations that obtain beneficial strategic fit with the business environment, and which utilise one or a combination of the generic strategies with appropriate organisational characteristics and resources/capability, will outperform competitors that do not. The study indicated that adopting a suitable model for improving organisational performance will enhance their competitiveness, thus, the model is developed to enhance organisations performance in an efficient manner.

9.6 Contribution to knowledge

The results of this study contribute to a better understanding of the influence of competitive strategy on the performance of construction organisations in the South African context. This includes both the hypothetical description of the nature of the association between organisational characteristics and organisational performance, and the model of organisational performance.

Compared to previous empirical studies on strategic management in construction, this study provides a holistic account of the effects of organisational characteristics, strategies, resources and capabilities on organisations' performance. The study's use of a mixed methods approach provided an insight not only into how strategies used by organisations impact on their

performance, but also into how other constructs assist organisations in achieving sustainable performance.

In addition, the findings from the tested hypotheses offer support to the theoretical modelling of the study on the sources of performance differentials among organisations operating in the same industry environment. The study indicates that, although differences in organisational resources can be of advantage to some firms over others, resources on their own cannot guarantee improved performance without matching them to the characteristics of the organisation, and without employing an appropriate strategy.

Another major contribution made by the study is in the development of a structural model for measuring organisations' performance. This model was validated in part through hypotheses testing, and as a whole using PLS-SEM where the nexus with other constructs included in the model were tested. The use of a chain of evidence to enhance knowledge is the foundation of the strategic management field; hence PLS-SEM is a strong method for research that intends to refine theories in strategic management, and offers numerous advantages to researchers in the strategic management field. Previous researchers on strategic management in construction have employed Structural Equation Modelling to develop models. Surprisingly, the PLS-SEM technique has not yet been extensively employed in mainstream strategic management research as well as construction management field. This research demonstrates that PLS is a key multivariate method of analysis that can be used in the study of strategic construction management, by modelling the complex inter-relationships of variables.

Therefore, this study makes a contribution to knowledge by developing and extending our understanding of strategy in the construction industry. This study also presents a structural model which provided parameters for construction organisations to harness their resources, adopt relevant decision-making structures, and combine these with appropriate strategy, to improve performance in different environmental conditions.

9.7 Practical implications of research findings, and recommendations

The research can be used as a strategic management tool for promoting the continuous improvement that is essential for gaining competitive advantage, and to ensure continuous business survival in the dynamic construction industry business environment. The study

demonstrates the need to undertake strategic analysis as an integral part of organisation business plans, and to determine whether resources available within the organisation are sufficient to execute its strategic objectives.

The study showed that a thorough understanding of the business environment, the organisation's capabilities, clients, competitors, and the marketplace will enable organisations to take strategic decisions and align their management philosophy with the achievement of organisational goals. The findings indicate that Chief Executive Officers, project managers, and others tasked with managerial responsibilities need to understand the type of decision-making structures most appropriate for different business environments, if they wish to improve their organisations' performance.

The results of the study will also provide significant insights for government agencies such as the cidb, saddled with the responsibility of developing and implementing policies regarding the performance of the South African construction industry and for construction professionals, senior executives and project managers, on how to measure, check and improve the competitiveness and performance of their organisations. The study also demonstrated the relationship between resources and capabilities and competitive strategies in achieving superior organisational performance. It is potentially helpful for managers to understand that a differentiation strategy is most appropriate when an organisation can improve its market share through technological resources.

The findings of the research also present empirical evidence for practitioners in the construction industry on the impact of organisational characteristics and strategies of construction organisations on their performance. The study shows that emphasis should be placed on strategic analysis, assessment of decision-making structures (to refine lines of command / communication), and implementation of relevant competitive strategies to achieve sustainable competitive advantage.

Based on the findings and the practical implications emanating from the research, the following recommendations are made to offer direction to management of organisations and industry practitioners in improving performance:

- Managers should endeavour to provide both the employees and stakeholders with clarity about the reason for the organisation's existence. Having a clear purpose will guide the organisation in achieving its stated objectives and enhance its performance. In real terms, this can be attained by communicating to the stakeholders (in writing) the purpose and goals of the organisation and how the organisation intends to achieve those goals.

- To improve organisational performance, business leaders must place a high value on strategic analysis of the business environment. It is imperative to identify their organisation's strengths and weaknesses, so that they can tap into opportunities offered by the environment and reduce or eliminate threats to the organisation's growth.

- For organisations to achieve sustainable competitive advantage, organisational resources and capabilities must be recognised. These resources and capabilities should be deployed strategically to the company's advantage, in order to grasp the opportunities in the market and achieve sustained competitive advantage.

- It is important to consider the characteristics of the business environment, and then to identify and implement the decision-making and management styles most appropriate to that environment. This can set an organisation apart from its competitors. Keeping the workforce updated about the organisation's objectives and fostering participation in decision-making process may bridge the gap between subordinates and managers and enhance performance.

- Construction organisations should institute a mechanism to evaluate performance periodically and track deviations from the organisation's business plan. Early identification of challenges and taking steps to rectify problems can ensure continued survival in the industry.
- Government should do what it can to create an enabling environment for construction organisations. One practical step would be removing the bottlenecks in the tendering procedure caused by prolonged negotiations prior to award or outright cancellation of a tender.

- The findings from the survey showed that construction firm managers perceive there to be corruption and a lack of transparency in the construction business environment. This may perhaps account for why organisations adopt different strategies to survive. Thus there is a need for government agencies at all levels to subscribe to an ethical culture of transparency and accountability.
- Government and its agencies should assist construction companies to export their services across national borders. This would have the dual benefit of reducing competitive intensity locally within the industry, while enhancing the growth of organisations that participate in international construction markets.

Implementation of these recommendations requires that workable mechanisms be put in place, such as training and retraining of staff, recruitment of qualified / skilled workers, continuous improvement of strategy through performance evaluation, benchmarking against competitors, establishment of viable reward mechanisms targeted at excellent performance, and reducing staff turnover.

9.8 Research limitations

The research reported in this dissertation was not without its limitations. The study provided empirical evidence on the influence of competitive strategy and organisational characteristics on the cause of performance heterogeneity in the construction industry. The adoption of a mixed methods approach helped in providing answers to the research questions stated in Chapter 1. However, generalising the findings from this study should be done with caution because of the small sample size (72 responses and four case studies). Furthermore, with respect to the case studies, non-probabilistic sampling was used to select the case study organisations; this may also limit the generalisability of the results from the case studies. It is important to note, however, that non-random case studies are considered a satisfactory research strategy and are usual practice in strategic management research. The selective nature of the sample need not weaken the validity of the data or the insights gained from it.

In addition, some of the findings in the study were not explicitly described; this implies motivation for future studies to explore how organisational performance could be improved with adequate knowledge of the business environment. The study identified the dimensions of the business environment (dynamism, munificence, complex and competitive intensity), but the nature of their impact was not examined.

Within the quantitative measurement of the key constructs in the study, some of the variables employed as surrogates for the assessment of constructs may not have been the perfect measures. Although some of the variables and constructs used in this research have theoretical backing and have also been validated empirically in previous research, this is not an assurance that the measures used were faultless.

Another limitation was the use of Porter's generic strategies to measure construction organisations' strategic approach to achieving organisational objectives. Porter's typology has been criticised, by scholars who assert that the prescription of generic strategies using a simple framework like Porter's typology is ineffective arguing that strategy has to be context-specific.

This study also classified organisations into different strategic groups or clusters based on performance, characteristics, resources and capability and other factors. However, it should be noted that the study of the organisations was conducted over a limited period of time and as such it may be difficult to make performance predictions on that basis, considering the uncertain nature of the environment in which they operate. Therefore, there may be resources and capability differentials within a strategic group due to organisational specific advantage, which may have to be explored to make meaningful predictions.

In generalising the conclusions drawn from this research, caution has to be taken considering the study limitations identified. The findings are not entirely consistent and analogous to previous studies, due to differences between this study and previous research in terms of sample size and constructs adopted. There is clearly a need to undertake further research on these contemporary issues in construction in order to establish the nexus between business strategy, environment and organisational performance.

9.9 Future research

Based on the findings and limitations of this study given in the preceding sections, it is possible to identify promising areas for future research.

- This study explores the influence of construction organisations' resources on performance and competitive strategy, with a view to identifying the resources that

contribute significantly to the impact of competitive strategy on performance. Three resources were considered: technological, financial and human resources. There is, however, some debate in the literature about the role of resources in organisational performance, while some argued that it is resources at the disposal of an organisation that determine how it competes and attains superior performance; a few also contended that resources on their own cannot lead to sustained competitive advantage unless they are transmuted into capability. Therefore, a detailed investigation of the influence of resources on organisational performance is required using more variables such as physical resources etc.

- The moderating effect of the business environment on the strength of the relationship between competitive strategy and organisational performance was explored using hierarchical moderated regression. The generic model needs to be improved on to include moderated relationships among the constructs. An investigation of other contextual environmental factors that moderate the relationships between the constructs should be undertaken.

- Strategic analysis of organisations' environments assists in identifying whether the resources at the disposal of an organisation can support its strategic decisions. This may lead to identification of industry competitors, clients, and the prospects for growth in the market. An extensive examination of the influence of strategic analysis on organisational performance would complement the findings from this research.

9.10 Summary of the chapter

This study examined the influence of competitive strategy and organisational characteristics on performance of construction organisations. It has done this theoretically through a literature review, and empirically by collecting and analysing quantitative and qualitative data. The study tested a set of hypotheses, as well as exploring the relationships among the constructs included in the study. The conclusion that can be drawn from the existing literature, as well as the original research reported here, can be summed up as follows: organisations that pursue appropriate strategy, obtain strategic fit with the environment, select relevant resources, and employ pertinent organisational characteristics will outperform others that do not. Beyond this, the research has also made a methodological contribution to the strategic management literature in construction. The study demonstrates the usefulness of the PLS-SEM technique in developing a model for predicting performance, a technique not yet widely used by researchers in the construction industry. Limitations to the study have been identified, and recommendations made to effect continuous improvement of organisations and identify the direction for the change that can enhance their performance. The chapter ends with suggestions for future research that could build on the findings of this study.

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APPENDIXES

APPENDIX A- Sample of letter

UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

CONSTRUCTION ECONOMICS AND MANAGEMENT DEPARTMENT

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CONSENT FORM

Title of the research project: Competitive strategies and organisational performance in the South African construction industry

Name and position of the researcher:

Luqman Oyekunle OYEWOBI, PhD candidate, Department of Construction Economics and Management, University of Cape Town

Please tick box

1. I confirm that I have read and understood the information the researcher is seeking for the above study and have the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without offering reasons. ☐
3. I agree to take part in this study ☐

Name of participant (on behalf of the company) Date Signature

Luqman Oyekunle OYEWOBI (researcher) Date Signature

Note: that all the information provided by you will be treated in the strictest confidence. The result will be presented in aggregate format and no any individual disclosure will be made.

APPENDIX B- Questionnaire

UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

Department of Construction Economic & Management

Faculty of Engineering and the Built Environment.
University of Cape Town. Rondebosch, Cape Town,
South Africa.
March, 2013

Dear Madam/Sir,

Re: Competitive strategies and organisational performance in the South African construction industry.

This questionnaire is part of PhD (Construction Economics and Management) research project that is underway to investigate the impacts of competitive strategies on performance of construction organisation's in South Africa.

This phase of the research process is aimed at identifying organisational characteristics and strategies affecting the performance of contruction business in South Africa. The questionnaire can be completed in approximately 15 minutes.

You are free to add or make further comments that will assist the research. The information provided by you will be treated in the strictest confidence.

Should you have any question(s) or would like further information, please do not hesistate to contact me on 071-846-0805 or email me at oywluq001@myuct.ac.za.

Thank you for your assistance.

Mr Luqman Oyewobi (PhD Candidate)

Dr. Abimbola Windapo (Supervisor)

survey on the analysis of company characteristics, strategies and corporate performance of construction companies within the South African construction industry (January, 2013)

SECTION A GENERAL INFORMATION

SECTION A: GENERAL INFORMATION

Please choose from among the options supplied for each of the following 1 to 5 and place a tick (√) in front of any of the options that expresses your choice.

1. Name of organisation (optional)…….....

2. Years of organisational Existence: 1-5 ☐ 6-10 ☐ 11-20 ☐ 21-30 ☐ > 30 ☐

3. Number of employees in your organisation: 1☐0-99 ☐100-199 ☐500 and above

4. Please state your company's annual turnover.....

5. Kindly indicate your grade on CIDB register and class of works: (tick all that is applicable).

Class of works/ cidb grade	**6**	**7**	**8**	**9**
General Building construction (GB)				
Civil Engineering construction (CE)				
Electrical Engineering works- building (EB)				
Electrical Engineering works- infrastructure (EP)				
Mechanical Engineering works (ME)				
Specialist works (SW)				

6. Kindly indicate the province where your company operates (tick all that is applicable)

Province region	Tick
Easter Cape	
Free state	
Gauteng	
Limpopo	
Mpumalanga	
Northern Cape	
North-West	
Western Cape	

SECTION B: COMPANY CHARACTERISTICS, STRATEGY AND RESOURCES

7. Please (tick) as appropriate to indicate your assessment of the level of impact of company characteristics as defined below and its effect on organisational performance in the last five years considering your experience in the organisation using the following scale significance of Impact; Very low = very low effects on firm overall goals, low = low threat to firm objectives, moderately low = reduces attainment of firm objectives significantly, High= high effect on firm objectives, and very high=very high effect on firm objectives.

Very high	High	Moderate	Low	Very low
5	4	3	2	1

No	ORGANISATIONAL CHARACTERISTICS	Impact				
		5	4	3	2	1
	Organisational structure					
OC1	Management controls how individual employee works or activities are spelt out					
OC2	Managers ensure integration & coordination of individual employee activities and align them to company's strategies					
OC3	Management channel organisations system to maintain healthy relationship with business environment					
OC4	The nature of the organisational structure encourages improve strategy and delegation of authorities					
	Management style					
OC5	Management make decisions in the best interest of employee after consultation					
OC6	Employees & Managers present ideas, ask questions, listen, and provide feedback.					
OC7	Managers facilitate two-way communication, give room for employees to heard and provide feedback during meeting					
OC8	Management recognises & rewards efficiency, excellence, openness, social skill and contribution to decisions					
OC9	Managers usually specify types of monitoring vehicle & require timely feedback, specify to their demand					
OC10	Employees tend to more committed to goals when they are set by the management					
	Decision making style					

OC11	Managers encourage employees to focus on the key techniques, show independence and initiative in solving problem (directive)					
OC12	Management encourage analytic ideas and welcome alternative approach to problem solving (analytical)					
OC13	Managers strengthen creative and encourages independent action (conceptual)					
OC14	Managers are aware of socio-cultural attitudes of the employee & they are being guided towards meaningful problem solving strategies to create enabling environment (Behavioural)					

		OVERALL PERFORMANCE LEVEL				
		5	**4**	**3**	**2**	**1**
EXF	Evaluate your organisation's overall performance with respect to the effect of "organisational characteristics".					

8. Based on your experience, kindly indicate the frequency of employing the business strategy defined below to improve the performance of your organisation to achieve the overall objectives in the last five years using the scale below

Always	Very often	Sometimes	Rarely	Never
5	4	3	2	1

	BUSINESS STRATEGY (Differentiation strategy)	**Frequency level**				
		5	**4**	**3**	**2**	**1**
BS1	Achieving high quality in the constructed facility					
BS2	Achieving high quality beyond the requirements in the specifications					
BS3	Being highly responsive to clients' requests					
BS4	Achieving on schedule performance in construction operations					
BS5	Attempting to deliver constructed facilities ahead of schedule					
BS6	Introducing innovative financing methods					

	BUSINESS STRATEGY (Cost leadership strategy)	Frequency level				
		5	4	3	2	1
BS7	Emphasis on production capacity utilization					
BS8	Emphasis on operating efficiency (e.g. productivity in production or efficiency in outbound logistics)					
BS9	Emphasis on finding ways to reduce costs (e.g. standardising the product or increasing the economy of scale)					
BS10	Emphasis on efficiency of securing raw materials or components (e.g. bargaining down the purchase price)					
BS11	Emphasis on tight control of selling/general/ administrative expenses					
BS12	Emphasis on price competition (i.e. offering competitive prices)					

	BUSINESS STRATEGY (Focus strategy)	Frequency level				
		5	4	3	2	1
BS13	Targeting a clearly identified segment (e.g. emphasising a provincial region or a specific group of consumers)					
BS14	Offering specialty products tailored to a particular group of customers or users					
BS15	Uniqueness of your products (e.g. unique function or design					
BS16	Offering products suitable for a high price segment					

Level of Impact on performance

Very high	High	Moderate	Low	Very low
5	4	3	2	1

9. Based on your experience, kindly compare with your main competitors and indicate the level of impact of employing the following resources and capabilities to improve the performance of the organisation in the last five years to achieve the overall objectives using the scale below:

Very high impact	High impact	Moderate	Low impact	Very low impact
5	4	3	2	1

	FINANCIAL RESOURCS	Significance level				
		5	4	3	2	1
FS1	Ability to use company's own fund/finance to finance construction works					
FS2	Ability to get equity-selling part of the company					
FS3	Ability to secure debt or loan to fund expansion, improve profit ratio and improve cash-on-cash returns					
FS4	Ability to secure surety bond or insurance policy					

No.	HUMAN RESOURCES	Significance level				
		5	4	3	2	1
HR1	Strengthen the procedures for recruitment, training & promoting all levels of employees					
HR2	Enhance reward & recognition program for motivating and challenging employees					
HR3	Development of organisation capabilities through participation of top managers & technical personnel in professional development					
HR4	Create enabling working environment that reduces absenteeism and maintain considerable level of employees' turnover					
HR5	Manage talent & enhance staff knowledge and skill in strategic areas					
HR6	Improve relationship with employee/trade union					

No.	TECHNOLOGICAL RESOURCES	Significance level				
		5	4	3	2	1
TS1	Company assessment of technological opportunities and threat is effective					
TS2	Company R& D in technological activities are well organised to ensure allocation of resources efficiently					
TS3	Creation of work environment that encourages creativity and innovation					
TS4	Technology play a key role in firms business as well as quality of equipment					
TS5	Company is efficient in integrating new technology into business system and process					

		OVERALL SIGNIFICANCE LEVEL				
		5	4	3	2	1
Q10	Evaluate your organisation's overall performance with respect to the effect of the "strategies adopted".					

APPENDIX C- Questionnaire business environment

UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

Department of Construction Economic & Management
Faculty of Engineering and the Built Environment.
University of Cape Town. Rondebosch, Cape Town,
South Africa.
March, 2013

Dear Madam/Sir,

Re: Competitive strategies and organisational performance in the South African construction industry.

This questionnaire is part of PhD (Construction Economics and Management) research project that is underway to investigate the the impacts of competitive strategies on performance of construction organisation's in South Africa.

This phase of the research process is aimed at identifying environmental factors affecting the performance of contruction business in South Africa. The questionnaire can be completed in approximately 15 minutes.

You are free to add or make further comments that will assist the research. The information provided by you will be treated in the strictest confidence.

. Should you have any question(s) or would like further information, please do not hesistate to contact me on 071-846-0805 or email me at oywluq001@myuct.ac.za.

Thank you for your assistance.

Mr Luqman Oyewobi (PhD Candidate)

Dr. Abimbola Windapo (Supervisor)

IDENTIFICATION CONSTRUCTION BUSINESS ENVIRONMENT

Construction business environment from literature have been classified under two main categories:

1) Endogenous environment; and
2) Exogenous environment.

The endogenous environment comprises of those relevant physical and social factors that are within the boundaries of the individual organisation or specific decision unit that are taken directly into consideration in the decision-making behaviour of individuals in that system.

*Exogenous business organisation comprise of forces, institutions or organisations functioning outside the company that are capable of impacting on the company performances directly or indirectly

1. Please tick (√) as appropriate to indicate your assessment of the level of the impact of identified factors using your experience in the industry. The scale is as follows: significance of Impact and level of performance; Very low = very low impact on firm overall goals, low = low impact on firm objectives, moderately low = reduces attainment of firm objectives significantly, High= high impact on firm objectives, and very high=very high impact on firm objectives.

Very high	High	Moderate	Low	Very low
5	4	3	2	1

No.	Exogenous Environmental Factor	Performance level					Impact				
		5	4	3	2	1	5	4	3	2	1
EX1	Fiscal policy										
EX2	Political instability										
EX3	Health and safety issues										
EX4	Technological impact										
EX5	Strong political opposition/hostility										
EX6	Inconsistencies in government policies and laws										
EX7	Interest rate instability										
EX8	Exchange rate fluctuation										
EX9	Legislation change/inconsistencies										
EX10	Industrial & Trade policy										
EX11	Change in tax regulation & policy										
EX12	Corruption and lack of transparency										
EX13	Employment pattern & attitude to work										
EX14	Environmental issues & legislation										
EX15	Public /press opinion										
EX16	Socio-Cultural differences between main stakeholders										
EX17	Procurement act & legislation										
EX18	Intense rivalry between organisations										
Ex 19	Cancellation of tenders										

Ex 20	Demand for construction work										
Ex21	Prolong negotiation prior to award										

Q2 EXF	Evaluate your company's overall performance with respect to the effect of "exogenous factors".	**OVERALL PERFORMANCE LEVEL** **5**	**4**	**3**	**2**	**1**

No	**Endogenous Environmental Factors**	**Performance level**					**Impact**				
		5	**4**	**3**	**2**	**1**	**5**	**4**	**3**	**2**	**1**
EN1	Mission & Vision of the organisation										
EN2	Business Competition law										
EN3	Poor financial status										
EN4	High finance cost of projects										
EN4	Lack of creditworthiness										
EN5	Career path for employees										
EN6	High bidding costs										
EN7	Compliance with cidb rules										
EN8	Lack of government guarantees										
EN9	Bankruptcy of firm'										
EN10	Team spirit among employees										
EN11	Management strategy										
EN12	Leadership style										
EN14	Manpower problem associated with trade unions										

Q2b ENF	Evaluate your company's overall performance with respect to the effect of "endogenous factors".	**OVERALL PERFORMANCE LEVEL** **5**	**4**	**3**	**2**	**1**

Q3-Q6 The following questions relates to your organisation's business environment characteristics over the past five years. Please indicate your assessment of the level of influence it has on your organisation's performance by ticking the box using the scale provided below.

Very high	High	Moderately low	Low	Very low
5	4	3	2	1

Q3. Environmental Dynamism

		5	**4**	**3**	**2**	**1**
BEC 1.	The marketing environment faced by our firm is rapidly changing					
BEC 2.	Customers constantly have new requirement of products and services					
BEC3	The industry environment our firm operates is fragmented and changes without stop					
BEC 4	Customers' requirements of amount of products/services and delivery time change constantly					

Q4. Environmental competitiveness

		5	**4**	**3**	**2**	**1**
BEC 5	Competition in our local market is intense					
BEC 6	Our firm has relatively strong competitors					
BEC 7	Our firm is in a highly competitive market					
BEC 8	Price competition is a hallmark of our local market					
BEC 9	Emphasis on producing to the customers' quality requirement					
BEC10	Importance of unreliable supplier quality					

Q5. Environmental complexity

		5	4	3	2	1
BEC11.	The complexity of knowledge required to meet customer needs					
BEC12.	The degree of segmentation within major end user markets					
BEC 13	The complexity of effectively managing the supply chain					

Q6. Environmental munificence

		5	4	3	2	1
BEC14	The demand for our product in our current market is strong and growing					
BEC15	There is a potential for high demand growth in our market					
BEC16	There is an abundance of resources (i.e., financial, supplies, human resources, etc.) in our market to companies to support growth potential.					
BEC17	There is no shortage of necessary resources in our market					

APPENDIX D-Measurement scale of organisational performance questionnaire

UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

Department of Construction Economic & Management
Faculty of Engineering and the Built Environment.
University of Cape Town. Rondebosch, Cape Town,
South Africa.
March, 2013

Dear Madam/Sir,

Re: Competitive strategies and organisational performance in the South African construction industry.

This questionnaire is part of PhD (Construction Economics and Management) research project that is underway to investigate the impacts of competitive strategies on performance of construction organisation's in South Africa.

This phase of the research process is aimed at identifying impact of various measures of performance influence performance of contruction business in South Africa. The questionnaire can be completed in approximately 15 minutes.

You are free to add or make further comments that will assist the research. The information provided by you will be treated in the strictest confidence.

. Should you have any question(s) or would like further information, please do not hesistate to contact me on 071-846-0805 or email me at oywluq001@myuct.ac.za.

Thank you for your assistance.

Mr Luqman Oyewobi (PhD Candidate)

Dr. Abimbola Windapo (Supervisor)

MEASUREMENT SCALE OF ORGANISATIONAL PERFORMANCE

Please compare the performance of your organisation in the last five years with that of the competitors in the industry based on the following variables. Kindly indicate by ticking the box for each of the variables appropriately

Level of improvement

Very significant improvement	Significant improvement	Moderate improvement	Insignificant improvement	Very insignificant improvement
5	4	3	2	1

No.	**Competitor's effectiveness indicators**	**Level of improvement**				
		5	**4**	**3**	**2**	**1**
BP1	Return on Investment					
BP2	Productivity					
BP3	Profitability					
BP4	People Management (Employment growth)					
BP5	Employee turnover					
BP6	Financial ratios					
BP7	Capability					
BP8	Competent workforce					
BP9	Growth in contract awards (Customer satisfaction)					
BP10	Market growth					

Q12. Please indicate the extent to which your organisation has been successful in achieving the following performance objectives in the last five years. Kindly tick as appropriate.

Very successful	Successful	Somehow successful	Unsuccessful	Very unsuccessful
5	4	3	2	1

No	Objective attainment	Success level				
		5	4	3	2	1
OPL1	Improvement in long-term performance					
OPL2	Predicting organisation's future growth					
OPL3	Evaluate alternative based on relevant information					
OPL4	Preventing problem areas					
OPL5	Resolving problems					
OPL6	Promoting management development					

Note:

Definition of terms

People Management - this is used to determine how the organisation views the development of its employees, investigates the way their performance and training needs are assessed, in relation to the needs and requirements of the business to achieve competitive advantage.

Productivity – The value added per employee, i.e. the total turnover of the companies projects less all costs subcontracted or supplied by other parties

Profitability – Profit before tax and interest as percentage of sales.

Growth in contracts award (Customer Satisfaction) – this is employed to examine the level of satisfaction of the client with respect to finished products and performance in terms of growth in contracts won/awards.

Employee turnover (People Satisfaction) - this entails how employees' satisfaction are measured to reduce labour turnover and also examines the type and level of employee empowerment existing within the company compare to their competitors.

Return on Investment- this comprises of all measures of organisation's returns on investment to evaluate efficiency, improve its performance or competitive advantage such as Capital Investment / Turnover; Marketing Expenditure / Turnover; and R&D Expenditure / Turnover.

Financial ratio (Financial management)- This consists of all the financial ratios for measuring financial performance of organisation such as acid test which measures the company's liquidity, and its ability to pay all their short-term liabilities immediately.

Capability- Capability in terms of resources to compete favourably in the industry market in relation to other competitors

Human resources- Competent workforce

Market growth/share- The extent market being controlled by the organisation (in terms of provincial dispersion)

APPENDIX E - Interview guide and transcript sample

Interviewee's Name: Date

Name of the organisation:

Interviewee's position in the organisation:

Region or province of the interview (organisation):

Start and finish time of interview:

SECTION A

DEMOGRAPHICS

1. How many years have you worked in the organisation?
2. How many employees do you have in your organisation?
3. State your organisation's grade on the cidb register of contractors and its class of works
4. Year company started operations
5. Number of times your company has been upgraded on the cidb register.
6. Business model: pty, cc, partnership etc
7. Ownership identity: black, white, black female, white female
8. BEE status

SECTION B

ORGANISATIONAL CHARACTERISTICS

1. **Can we** have a look at the structure in place in your organisation?

What organisational structure do you utilise to attain the level of performance your organisation desires?

-is decision making centralised or decentralised?
-does the structure permits delegation of responsibilities?
-does management ensure integration of individual activities & align same to organisational goals

2. Let us discuss the management approach in use by your organisation. Please do tell me about the management of your employees.

What style of management practices do you use in your organisation that has helped in attain the objectives of the organisation?

How would you describe your organisation's management style?
-Does the organisation allow employees to take decisions, present ideas, ask questions and get feedback?
-Does your organisation identify, recognise and reward good performance from employees?

-Can you give some examples?

3. Now let us discuss your organisation's decision making style

What style of decision making practices do you use in your organisation that has helped in attain the objectives of the organisation?

SECTION C

STRATEGIC MANAGEMENT PROCESS

Do you use business strategy or a strategic process in running your Organisation?

Are the strategies formally written or are they ideas conceived in the head?

How often do you review this?

1. Strategic Process

***How** does your organisation carry out its strategic process?*

***Who** carries out your organisations management of strategy?*

***Wh**y is strategic process undertaken by your organisation?*

***When** is the strategic process undertaken?*

2. Business Strategy

***What** type of business strategy does your organisation adopt?*

***What** financial strategy do you have in place in your organisation?*

Why do you manage the strategy in the way that you do?

Does your organisation use any tools or techniques to manage its strategy process?

What are the factors (if any) that impact on the strategy used by your organisation?

What is the influence of technology, human resources and financial resources on your organisation's strategy and performance?

BUSINESS ENVIRONMENT

Let us discuss about your business environment and competitors.

What geographic or provincial region do you have the greater part of your work?

Does your organisation seek information about the industry environment, its trends and/or your competitors?

Do you seek information about the market within which you function or have special market research, briefly describe how you do it?

How often do you receive feedback (if any) or collect opinions from your customers: public/the media; from material suppliers about your work?

Are these feedback given freely or on request?

How do you react to their comments about your work?

Do you gather information on your rivals for tracking of competitor tactics? yes/ no?

How is this information used? For example, for planning, for performance improvement, for

Competition in the marketplace……

Compared with your direct business or industry competitors what would you say are your main strengths (advantages) as an organisation*? – Effective management and leadership skills; Financial resources; Quality of product or service; Stakeholders' relations; employee quality…….*

Compared to your direct competitors what would you say are your main weaknesses (disadvantages) as an organisation? *– Increased Competition; Change in political or Economic Environment; New Market entrant and Poor market growth.*

What do you consider to be threats to your business, which do you, consider being the biggest threat*...delayed payment; project procurement methods and difficulty……..*

What do you consider to be your best opportunities, (opportunities include for expansion, increased profitability, entering a new market niche etc.) *– government intervention – favourable procurement policies, HDI, BEE, etc; increased spending by clients – governemnt or private sector; Joint venture opportunitie….*

SECTION D

ORGANISATIONAL PERFORMANCE MEASUREMENT

How does your organisation Measure Business Performance?

I am interested in the ways the performance of your organisation is measured. Could you please let me know whether you evaluate the performance of your organisation and in what ways?

Probe: Why the performance is measured in this way?

Considering the measures of performance we have talked about above how and why do you use these measures?

Explore for information on when and why these measures are used?

____for assessing progress or health checks of business

____ For improving the business

-How important are the non-financial measures (such as customer satisfaction etc.) compared to financial measures (such as sales growth etc.)?

-Is there a view as to whether non-financial measures are related to financial outcomes?

Consider these statement and what do you think of them?
How is the organisation perceived by its shareholders (financial perspective)?
What must the organisation excel at (internal business perspective)?

How is the organisation seen by its customers (the customer perspective)?
How can the organisation continue to improve and create value (innovation and learning perspective)?

-What are the Key Performance Indicators of your organisation? Can you give me five?

-What significant factors do you consider as barriers to the implementation of corporate performance measurement systems in your organisation?

Appendix E 2: Sample of verbatim transcription – Organisation W

Company W

Three participants

- *The CEO of the organisation*
- *Dr Windapo- Research supervisor*
- *Luqman Oyewobi- PhD research student*

Luqman- thank you very much for your willingness to participate in this research and for your audience. I am Luqman a PhD research student in the Department of Construction Economics and Management, University of Cape Town, sitting next to you is my Supervisor, Dr Abimbola Windapo. Kindly permit me to keep you abreast of what my research is all about, by running through the agenda and the structured questionnaire that I have as a guide.

Respondent: It is okay.

Luqman: I decided to choose you as one of my interviewee because you responded 100% to my questionnaire and I believe I am likely to have more information from you that can help in my research.

Respondent: Ja

Luqman: Okay sir. Let with start by getting to know more about your organisation.

Respondent: That is fine.
Luqman: Please sir, can I know your position in this organisation?

Respondent: I am the CEO

Luqman: How many years have you worked in the organisation?

Respondent: I have been here since 1989, which is about 24 years now.

Luqman: When did you organisation start operating in the SACI

Respondent: The Company was established in 1986, and since then we have being in operation till today.

Luqman: How many employees do you have in your organisation?

Respondent: We have about 2000 staff consisting of 650 employees on its monthly payroll, 1350 hourly employees, while about 1000 plus are on contract.

Luqman: What is your organisation's grade on the cidb register of contractors and its class of works? And how many times has your organisation been upgraded on cidb register.

Respondent: Okay. We are one of the few organisations that started as grade 9 on the register. Before cidb came into existence, we have been operating and big already to take up big contracts.

Luqman: Okay, thanks. What business do your organisation operates.

Respondent: Can u say that again?

Luqman: Sorry sir, the other time you said it is a group of companies. That is why I want to know more.

Respondent: Ja, it is a group of companies. We have civil engineering company, Building construction company and we have got a share in Geotechnical company in J"burg.

Luqman: How is the Ownership identity of the organisation like: black, white, black female, white female?

Respondent: Ja. The company is owned by both white and black, but the black ownership is 21% as against 79% white ownership. Virtually everybody is shareholder in the company.

Luqman: what is then the BEE status of the organisation?

Respondent: Level two.

Luqman: Thank you sir. Before I move to the next stage of the interview. I saw this on your website. Kindly listen to it "when we look forward, it is hard to make predictions on things like turnover, as it depends on what the South African market does. We are not a company that pursues growth for the sake of growth—as long as we are able to deliver for our clients, ensure that our staff are happy and maintain a competitive position in the market at the size we are now then we are accomplished".

Respondent: I can't get you.

Luqman: Okay let hand it over to you may be you can understand me better. I saw on your website, may be you wrote it or someone else does.

Respondent: Okay. He reads a bit loud. Okay Ja, it is in one of the interviews we granted and later put in the article.

Luqman: Sir, having a critical look at your organisation, what organisational structure do you utilise to attain the level of performance your organisation desires? Can we say the structure of the organisation is mechanistic in nature? I mean, is the decision centralised since the organisation is a group of company?

Respondent: I would say the decision is centralised in the head office, but you can be asked to make decisions on a project you are handling as an engineer. Each construction/project site is run like a company or business, therefore, you have the autonomy to make your decisions because each site has its own profit and loss.

Luqman: Are you saying the decision-making is decentralised?

Respondent: Ja. So in a way I can say the decision is decentralised.

Luqman: Different organisation adopts different management style to get work done, this may be exploitative authoritative, consultative or democratic, what style of management practices do you use in your organisation that has helped in attain the objectives of the organisation? How would you describe your organisation's management style?

Respondent: We work in teams and our decision-making depends on what decision we are to make. We work as a team for sure. Sometimes short-term decision is a like one-man decision, if it is a decision one is to make on the field as an Engineer, but for long-term strategic decisions, we work in teams. If it is engineering decision on the field, you use your experience, so it depends on the nature of decision. If we want to buy a company, we don't make a single-man decision, we go through the board of directors, shareholder, we make corporate governance decisions.

Luqman: Does the organisation allow employees to take decisions, present ideas, ask questions and get feedback?

Respondent: Yes, but it depends on the decision. If it is about the work, yes he is allowed to make decision but not decisions that will have bad implication for the company. Also, because of power trust, we appoint one of the staff members as a member board of directors. The management appoints him, the trustees and board approve the person, it is quite transparent.

Luqman: Does your organisation identify, recognise and reward good performance from employees?

Respondent: I don't understand. Can you say that again?

Luqman: Yes sir. Does your organisation reward excellent performance from employees.

Respondent: Absolutely

Luqman: So, how do you reward them: financially or otherwise?

Respondent: You gonna understand from our culture. Our culture is like my position right now, after ten years in this position, I have to leave for someone among the staff to replace me. That is my job and my responsibility is to find my successor and that goes down the line. This basically the philosophy of our organisation. I am 47 yrs now, at 52 am expected to move to advisory position for five years and working closely with the person I have chosen as my successor, imagine if I choose wrong person, I am going to have tough time. That is the cycle. Are okay with that.

Luqman: Ja Ja and Dr windapo laughed.

Luqman: Now sir, let us discuss your organisation's decision making style. What style of decision making practices do you use in your organisation that has helped in attain the objectives of the organisation?

Respondent: As a company we are conservative and we don't make emotional decisions. Genuinely, our decisions are based on this fact and this rational logic. We look at company's culture and structure before we make decisions, it takes longer time. We are very conservative, Engineers are conservative by nature. Smiles….

Luqman: Sir, let us look at this statement again "We are not a company that pursues growth for the sake of growth—as long as we are able to deliver for our clients, ensure that our staff are happy and maintain a competitive position in the market at the size we are now then we are accomplished". How does your organisation formulate the strategy? Are the strategies formally written or are they ideas conceived in the head?

Respondents: We have three tiers in doing this. We have the board meeting which is the first level of meeting; strategic meeting- board plus senior managers and the site management-board plus site managers. Those three tiers develop our policies. Strategic meeting Ja, is a meeting of about ten to fifteen people, who tried to study the market and formulate policy about where are going.

Luqman: Who then implement the strategy?

Respondent: We decide that at the meeting and as long as somebody is in that meeting, they choose one person for the project and what is to be done is decided.

Luqman: Okay, when is this process embarked on, is it at the beginning of the year, quarterly or bi-annually? How often do you review this?

Respondent: We meet for the strategic meeting three times a year and we review it every time. You never ignore the review all the time, because politics change, market condition change and things are changing in the country. Will you stay in country when the market is not growing or will you move out?

Luqman: Different organisations adopt different strategy to be relevant in the market place, such as differentiation, focus or cost-leadership strategy. What type of business strategy does your organisation adopt?

Respondent: It is all about being cost efficient. The nature of the state procurement process is 90% price and 10% black empowerment. The guy with the cheap price is the considered, our own business is built around the procurement process and this very clear and keen. If you are not cost effective and productive you go nowhere, our principle is not that I want to be lowest tenderer or be in the middle, we do work at the cost we think we can do it. If your cost go too bad, that might a problem and one may be able to do the job.

Luqman: Does your organisation use any tools or techniques to manage its strategy process?

Respondent: We use techniques that make us successful in the market not textbook techniques. We figure out our techniques, for example we tender for couple of jobs every month and our success rate is 3 in 10, so we determine what our profits are based on that and that is how we compare our organisation with others in the market. If our success rate get worst, we analyse our organisation based on what is happening in the market and then we add may be 1% to get better and probably increase the turnover.

Luqman: In how many provinces do you operate? What geographic or provincial region do you have the greater part of your work?

Respondent: We operate all over South Africa. We like working in Eastern Cape very much, we like working in Western Cape. We worked in North-West but haven't work much in Limpopo. Most of the areas we people don't like working that is where we work. In fact, I was in Namibia last week.

Luqman: Does your organisation seek information about the industry environment, its trends and/or your competitors?

Respondent: Yes in couple of ways. We track analyst, we track the perception of the Rand and we pick that up from the banks. The banks give us the details of the perception of the Rand.

With respect to our competitor's analysis, we do competitive analysis every year, we get our analysis from two or three banks. Because this is where we are and this is the country where we are operating. We spend a lot of time in the bank analysing the market situation. We also, analyse our industry in terms of growth and the current happenings in the industry. However, our major competitors are the listed companies, all their financial information are in public domain, so we just go on the internet, download their report, information and analyst it or use software. That is what we do, you compare yourself with them.

Luqman: How often do you receive feedback (if any) or collect opinions from your customers: public/the media; from material suppliers about your work?

Respondent: Yes we do, very often.

Luqman: Are these feedback given freely or on request?

Respondent: We have meetings on all our sites/jobs, but I won't tell you exactly what they say. They spend a lot of money, we make know what the decisions are and we get to know whether they happy or not. We do this every month and we do have master checking process in place too. We put the mechanism in place and make it work.

Luqman: How do you react to their comments about your work? You know at times it could be complementary or derogatory.

Respondent: We need to balance it. Now we are doing a building job for the City of Cape Town, the first green building. Now on that site we are having problems, we have to bring down the windows because of poor quality from the subcontractor. They are not happy and that is the reality. We have to go and fix that, it is our work and our problems, but it is the subcontractor. We got the job and they are looking for us and you can't react to their comments. You can't.

Luqman: Based on the analysis you said you do conduct about the market environment and the industry, compared with your direct business or industry competitors what would you say are your main strengths (advantages) as an organisation? – Effective management and leadership skills; Financial resources; Quality of product or service; Stakeholders' relations; employee quality……..

Respondent: we train most of our staff in school and when the graduate they return to us, so few people do leave our organisation. So good productivity is one of our strengths. When we make money we share it with everybody because everybody gets dividends and bonuses. From financial point of view, we share the financial resources together. From quality perspective, we benchmark ourselves on every job all the time. So in terms of cost and quality, we have good quality control unit and monitors the quality and we work based on the principle that when you work and you do it right, you don't have to do it again and this make it cheaper. I think it is quality differential, if you have got people because without them you go nowhere. You can't.

Luqman: Compared to your direct competitors what would you say are your main weaknesses (disadvantages) as an organisation? – Increased Competition; Change in political or Economic Environment; New Market entrant and Poor market growth.

Respondent: I think strength is the factor that we are good road builders. 90% of our turnover is from road building. Larger percentage of our turnover is from provinces, so they become dysfunctional, we have got problem because 70% of our turnover is the province.

Luqman: What do you consider to be threats to your business, which do you, consider being the biggest threat...delayed payment; project procurement methods and difficulty……..

Respondent: Ja. Payment is an issue like Free State Government is owning us like R35 million and that is an issue. Western Cape pay well and Eastern Cape too don't pay badly.

Luqman: Cut in, what of lengthy procurement period, is it not a threat?

Respondent: Hmm, it depends on the angle you are looking at it from, for example San Rail takes 60 days and they conclude within 90 days. Free State is the longest we have experience, it takes three years, but we have province that does not that much long

Luqman: What do you consider to be your best opportunities, (opportunities include for expansion, increased profitability, entering a new market niche etc.) – government intervention – favourable procurement policies, HDI, BEE, etc.; increased spending by clients – government or private sector; Joint venture opportunities….

Respondent: I think the opportunity is that we have taken a lot of work that will carry us for the next two years. Next year is going to be tough, because the country is spending more than what it earns. It is like me earning R10/month and spending R12/month. We have balance trade deficit of R5billion, we can't carry on like this, or else we would go bankrupt as a nation. So we have got problems, saying state will spend on infrastructure development may be difficult, because they spend 45% of the budget on paying salary. With the political dispensation now, Zuma cannot fire the police or the entire workers because they not productive, and the only way he can pay all these people is to reduce fixed capital expenditure. We believe next year is still going to be like these for construction organisations, though this is not sustainable but we don't know how he is going to do it. We have taken a very big order book to take us for the next a year and a half and see what happens, because we assure you the market is going to retrench until we get the fiscal policies right. This is our assessment of the situation and that is what we have done.

Luqman: How does your organisation Measure Business Performance? I am interested in the ways the performance of your organisation is measured. Could you please let me know whether you evaluate the performance of your organisation and in what ways?

Respondent: we use SWOT analysis system and we do that frequently within the organisation and for all the staff twice in a year. The managers do that and we know all our workers and we are sure they can perform. We see whatever they are doing

Luqman: Which performance measurement model or tools do you use in your organisation?

Respondent: I don't get that, do you mean in terms of measuring people? Dr Windapo cuts in, no, he means how you measure your corporate performance. Ja, okay we use consider performance measurement important, one will be people management, one will be productivity, and growth of your staff. We do tell our workers what the key performance measurements are and we measure them against the target to get the feedback. It is not about money, it is about productivity, growth of people and about learning and programming. Then

that will end up giving him a balance scorecard but the scorecard in terms of what you used, but that is our scorecard. That is what we needed as a good manager or good foreman.

Luqman: Considering the measures of performance we have talked about above how and why do you use these measures? Is it for assessing progress or health checks of business or for improving the business?

Respondent: No we don't use it gauge the health of the company but as a guide. We check the company's health by asking our employees how they feel about the company, what is on their mind and how happy they are. That tells you what health of the company is and that is what will use. The health of our people is what is important to us, their financial gauge is another aspect, and we know it because we see it all the time.

Luqman: When I visited your website, it appears as if you place more emphasis on non-financial measures of performance. How important are the non-financial measures (such as customer satisfaction etc.) compared to financial measures (such as sales growth etc.)? Or is there a view as to whether non-financial measures are related to financial outcomes?

Respondent: Hmmm, I like to say in a more management terms, non-financial stuffs because we have couple of people here that gives us nothing but good work. Ok, for me I spend more time on non-financial stuff and stuffs like that, but you have to balance the two. If don't manage your financial stuff, company goes bankrupt, and so also if you don't get people, to say which one is more important, I think you balance both. For instance, if you ask our tendering guy, the contract manager which one is more important to him, it is financial, but if you ask the board and say myself, I will say people. This is because these are two different people with different focus and we have to keep it like that. So to say which one is first hahaha……..

Luqman: How is the organisation perceived by its shareholders (financial perspective)?

Respondent: I think pretty well. Our shareholders see the company as their own, and our shareholders include the trustees which own 20% of the company; the regional people who found the company has 25%, they are great guys and the other 55% is the management of the company. These people are people from my level, to site manager to general foreman who is also a shareholder. Everybody that is involved are offered a share because these are people who is actually running the company and they what is going all the time because they are part of the business. We have shareholders meeting once a year, management meet three time a year, site agents meeting three time a year, because at our AGM we have to tell them what is going on and we can't decision without these guys, they are the shareholders. Last year and year before the last was really very tough for us, our dividends were down for like 20% we are not happy but many companies got into trouble which did not happen to us. The management and shareholders were not happy both we were in the same boat together.

Luqman: What must the organisation excel at or improved on (internal business perspective)?

Respondent: We need to look at all of Africa, we have been to Ghana, Tanzania, Nigeria but every time we get scared. Presently we get stuck in South Africa, I think we have problem there and we need to actually get our heads changed. We diversify pretty well into South Africa and our diversification is into crushing company, we have also got the geotechnical company diversify, I think our diversification is better in South Africa and it is to San Rail and provinces.

This is because 75% of our job is on road and from the provinces, I think our problem is that we love South Africa and we need to expand to the rest of Africa.

Luqman: You said earlier that your company has got enough job that can carry the company for the next two years, how is the organisation seen by its customers (the customer perspective)?

Respondent: I think it's quite a good view. I think we have good relationship with our customer and if there is anything we do and they like they tell us. I think they have good perception about us. We have got one and a half order book but you keep on looking for jobs, if you don't get then you retrench people. I think the perception is good but we have got a knock on our reputation by the competition commission involvement. We were dragged into that and we thought we are innocent, but it has done a lot of damage on our reputation, we need to spend a lot of time explaining that to our clients, what the whole story is all about but it will take time for people to build honest. We have the business for long and we have very keen and honest, in fact we took Free State to court on two or three occasions because we want to keep them honest. On Free State case, we are the lowest tenderer but the work was given to another company, because of R47 million we went to court to keep them honest. Though, the competition commission damaged our reputation and we do a lot explanation to build the trust to our client, we are okay not because we are the richest but we get three out of ten jobs we tender for.

Luqman: Dr Windapo thank the CEO for having us and for participating in the research.

Respondent: You are welcome.

APPENDIX F- Some results of the analysis

F1 - Competitive strategy and performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.397[a]	.158	.120	1625.23187	.158	4.242	3	68	.008

a. Predictors: (Constant), Focus, Differentiation, Costleadership

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4063.948	2827.984		1.437	.155
	Differentiation	-1704.677	502.244	-.388	-3.394	.001
	Costleadership	795.812	454.430	.200	1.751	.084
	Focus	48.239	426.260	.013	.113	.910

a. Dependent Variable: ROCE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.131[a]	.017	-.026	.54702	.017	.396	3	68	.756

a. Predictors: (Constant), Focus, Differentiation, Cost-leadership

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.245	.952		3.409	.001
	Differentiation	.027	.169	.020	.161	.873
	Costleadership	.135	.153	.109	.882	.381
	Focus	.060	.143	.051	.417	.678

a. Dependent Variable: Companalysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.224[a]	.050	.008	.33685	.050	1.193	3	68	.319

a. Predictors: (Constant), Focus, Differentiation, Costleadership

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.100	.586		5.289	.000
	Differentiation	.091	.104	.106	.877	.383
	Costleadership	.121	.094	.156	1.285	.203
	Focus	.046	.088	.062	.520	.605

a. Dependent Variable: Objachievement

F2- Organisational characteristics and performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.201[a]	.040	-.002	1734.82462	.040	.950	3	68	.422

a. Predictors: (Constant), OrgStructure, Decmkgstyle, Mgstyle

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	346.761	2414.801		.144	.886
	Decmkgstyle	513.920	398.761	.155	1.289	.202
	Mgstyle	-143.936	355.608	-.049	-.405	.687
	OrgStructure	-384.932	382.746	-.121	-1.006	.318

a. Dependent Variable: ROCE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.360[a]	.130	.091	.51475	.130	3.378	3	68	.023

a. Predictors: (Constant), OrgStructure, Decmkgstyle, Mgstyle

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.481	.717		3.463	.001
	Decmkgstyle	.321	.118	.310	2.716	.008
	Mgstyle	.131	.106	.143	1.239	.220
	OrgStructure	-.051	.114	-.052	-.451	.654

a. Dependent Variable: Companalysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.204[a]	.042	-.001	.33835	.042	.983	3	68	.406

a. Predictors: (Constant), OrgStructure, Decmkgstyle, Mgstyle

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.372	.471		7.160	.000
	Decmkgstyle	.092	.078	.142	1.185	.240
	Mgstyle	.018	.069	.031	.254	.800
	OrgStructure	.083	.075	.133	1.107	.272

a. Dependent Variable: Objachievement

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.390[a]	.152	.102	1642.54969	.152	3.008	4	67	.024

a. Predictors: (Constant), Differentiation, Mgstyle, Decmkgstyle, OrgStructure

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5690.998	2907.388		1.957	.054
	Decmkgstyle	556.825	377.826	.168	1.474	.145
	Mgstyle	-173.605	336.841	-.059	-.515	.608
	OrgStructure	-197.705	367.809	-.062	-.538	.593
	Differentiation	-1494.286	502.163	-.340	-2.976	.004

a. Dependent Variable: ROCE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.497[a]	.247	.164	1584.37516	.247	2.992	7	64	.009

a. Predictors: (Constant), focusxdms, OrgStructure, Differentiation, Mgstyle, Costxdms, Decmkgstyle, diffxdms

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-26638.113	16888.377		-1.577	.120
	Decmkgstyle	7360.501	3870.080	2.216	1.902	.062
	Mgstyle	-267.856	332.832	-.091	-.805	.424
	OrgStructure	-105.228	362.413	-.033	-.290	.772
	Differentiation	6547.471	4184.306	1.490	1.565	.123
	diffxdms	-1866.882	936.077	-2.990	-1.994	.050
	Costxdms	206.204	106.775	.340	1.931	.058
	focusxdms	-35.213	97.768	-.062	-.360	.720

a. Dependent Variable: ROCE

F3- Strategy, environment and performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.184[a]	.034	-.078	2160.04575	.034	.303	5	43	.909
2	.391[b]	.153	-.017	2097.65835	.119	1.865	3	40	.151
3	.660[c]	.435	.287	1756.85925	.283	9.512	2	38	.000

a. Predictors: (Constant), Munificence, Focus, Complexity, Compintensity, Dynamism

b. Predictors: (Constant), Munificence, Focus, Complexity, Compintensity, Dynamism, Humcap, Techcap, Fincap

c. Predictors: (Constant), Munificence, Focus, Complexity, Compintensity, Dynamism, Humcap, Techcap, Fincap, Differentiation, Costleadership

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-1637.362	4588.796		-.357	.723	-10891.552	7616.828
	Focus	-179.977	744.224	-.040	-.242	.810	-1680.848	1320.895
	Compintensity	-296.004	631.126	-.073	-.469	.641	-1568.792	976.783
	Complexity	217.989	483.128	.071	.451	.654	-756.332	1192.309
	Dynamism	120.373	571.270	.034	.211	.834	-1031.704	1272.449
	Munificence	699.943	714.792	.151	.979	.333	-741.572	2141.459
2	(Constant)	-8038.136	6626.942		-1.213	.232	-21431.684	5355.412
	Focus	-444.883	745.143	-.100	-.597	.554	-1950.872	1061.107
	Compintensity	-908.316	698.083	-.225	-1.301	.201	-2319.195	502.564
	Complexity	506.194	498.183	.165	1.016	.316	-500.671	1513.059
	Dynamism	247.926	559.225	.071	.443	.660	-882.311	1378.163
	Munificence	621.833	696.400	.134	.893	.377	-785.644	2029.310
	Fincap	1180.632	757.551	.253	1.558	.127	-350.434	2711.699
	Humcap	-638.587	766.903	-.132	-.833	.410	-2188.556	911.383
	Techcap	1839.560	946.343	.311	1.944	.059	-73.070	3752.191
3	(Constant)	-5216.012	5855.124		-.891	.379	-17069.092	6637.068
	Focus	-501.315	627.092	-.112	-.799	.429	-1770.796	768.166
	Compintensity	-756.341	630.779	-.187	-1.199	.238	-2033.287	520.604
	Complexity	461.552	417.409	.151	1.106	.276	-383.449	1306.553
	Dynamism	776.325	486.333	.221	1.596	.119	-208.205	1760.855
	Munificence	707.232	585.982	.153	1.207	.235	-479.026	1893.490
	Fincap	1081.695	642.869	.231	1.683	.101	-219.724	2383.114
	Humcap	-902.411	647.075	-.186	-1.395	.171	-2212.346	407.524
	Techcap	2445.449	831.395	.413	2.941	.006	762.378	4128.520
	Differentiation	-2838.228	679.833	-.583	-4.175	.000	-4214.479	-1461.977
	Costleadership	1373.672	715.604	.271	1.920	.062	-74.994	2822.337

a. Dependent Variable: ROCE

F4- Resources/capabilities, Strategies and performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.488[a]	.238	.168	1580.54788

a. Predictors: (Constant), Focus, Techcap, Fincap, Costleadership, Humcap, Differentiation

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50849421.540	6	8474903.590	3.392	.006[b]
	Residual	162378553.597	65	2498131.594		
	Total	213227975.137	71			

a. Dependent Variable: ROCE

b. Predictors: (Constant), Focus, Techcap, Fincap, Costleadership, Humcap, Differentiation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2076.925	3859.010		.538	.592
	Fincap	307.176	403.290	.084	.762	.449
	Humcap	-385.584	440.960	-.099	-.874	.385
	Techcap	1243.994	511.681	.289	2.431	.018
	Differentiation	-2135.405	526.426	-.486	-4.056	.000
	Costleadership	719.315	444.831	.181	1.617	.111
	Focus	64.509	415.288	.017	.155	.877

a. Dependent Variable: ROCE

F5 – ANOVA Results of cluster analysis

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Decmkgstyle	Between Groups	1.261	3	.420	1.583	.202
	Within Groups	18.058	68	.266		
	Total	19.319	71			
Mgstyle	Between Groups	1.267	3	.422	1.219	.309
	Within Groups	23.559	68	.346		
	Total	24.826	71			
OrgStructure	Between Groups	.122	3	.041	.133	.940
	Within Groups	20.878	68	.307		
	Total	21.000	71			
Differentiation	Between Groups	5.729	3	1.910	24.470	.000
	Within Groups	5.307	68	.078		
	Total	11.035	71			
Costleadership	Between Groups	3.318	3	1.106	7.396	.000
	Within Groups	10.168	68	.150		
	Total	13.486	71			
Focus	Between Groups	1.814	3	.605	3.158	.030
	Within Groups	13.019	68	.191		
	Total	14.832	71			
Compintensity	Between Groups	1.340	3	.447	1.981	.125
	Within Groups	15.327	68	.225		
	Total	16.667	71			
Complexity	Between Groups	.490	3	.163	.424	.737
	Within Groups	26.212	68	.385		
	Total	26.702	71			
Dynamism	Between Groups	.806	3	.269	.833	.480
	Within Groups	21.936	68	.323		
	Total	22.742	71			
Munificence	Between Groups	.670	3	.223	.883	.454
	Within Groups	17.204	68	.253		
	Total	17.874	71			
Companalysis	Between Groups	1.298	3	.433	1.516	.218
	Within Groups	19.406	68	.285		
	Total	20.703	71			
Objachievement	Between Groups	.291	3	.097	.841	.476
	Within Groups	7.831	68	.115		
	Total	8.122	71			
ROCE	Between Groups	17392254.787	3	5797418.262	2.013	.120
	Within Groups	195835720.350	68	2879937.064		

	Total	213227975.137	71			
	Between Groups	.956	3	.319	1.441	.238
Fincapability	Within Groups	15.043	68	.221		
	Total	15.999	71			
	Between Groups	1.550	3	.517	2.822	.045
Humancapability	Within Groups	12.444	68	.183		
	Total	13.994	71			
	Between Groups	.661	3	.220	1.378	.257
Techncapability	Within Groups	10.874	68	.160		
	Total	11.535	71			
	Between Groups	.011	3	.004	1.345	.267
LogFincapability	Within Groups	.186	68	.003		
	Total	.197	71			

APPENDIX G: Histogram showing normality assumption